

Exhibit R-2, RDT&E Budget Item Justification	DATE February 2004
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BUDGET ACTIVITY 07 Operational System Development	PE NUMBER AND TITLE 0208006F Mission Planning Systems
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Cost (\$ in Millions)	FY 2003 Actual	FY 2004 Estimate	FY 2005 Estimate	FY 2006 Estimate	FY 2007 Estimate	FY 2008 Estimate	FY 2009 Estimate	Cost to Complete	Total
Total Program Element (PE) Cost	19.795	51.645	136.701	143.154	196.749	148.541	96.314	Continuing	TBD
3858 Mission Planning Systems (MPS)	19.795	51.645	136.701	143.154	196.749	148.541	96.314	Continuing	TBD

(U) **A. Mission Description and Budget Item Justification**

The Mission Planning Systems (formally Air Force Mission Support System (AFMSS)) program was established in 1990 to consolidate mission planning system development efforts into a single unit-level mission planning system. Today's program maintains combat capabilities on existing legacy planning systems while migrating these capabilities and developing new ones to a USAF-wide standard mission planning system for all aircraft and weapons. Integrating military and commercial software on Commercial-Off-The-Shelf (COTS) hardware, Mission Planning Systems encompasses evolutionary software and hardware development in an open systems architecture to take advantage of the rapid growth of personal computer (PC) technology on increasingly smaller devices. Mission Planning Systems looks to integrate mission planning with other systems. Mission Planning Systems is a family of products that consists of the Mission Planning System (MPS), a robust UNIX-based system; the Portable Flight Planning Software (PFPS), a PC-based system; and the Joint Mission Planning System (JMPS), the next-generation, PC-based system, built to provide the interoperability needed by today's warfighter.

The MPS provides comprehensive mission planning tools to conduct missions ranging from day-to-day training, peacetime operations/exercises to complex operations supporting conventional and nuclear armed conflict. The MPS currently supports or will support the following aircraft and associated weapons: B-1, B-2, B-52, F-15, F-16, F-117, F/A-22, U-2, Air to Ground Munition (AGM)-130, AGM-142, Joint Direct Attack Munition (JDAM), Joint Stand Off Weapon (JSOW), Wind Corrected Munition Dispenser (WCMD), Joint Air-to-Surface, Stand off Munition (JASSM), Miniature Air Launched Decoy (MALD), and Global Hawk. Platforms use tailored software called an Aircraft/Weapons/Electronics (A/W/E) that integrate with the MPS core software to specialize the software for their mission.

The PFPS provides flight planning tools that support a broad range of mission needs and operational environments including day-to-day training, peacetime operations/exercises, and conventional armed conflict. The PFPS currently supports or will support the following aircraft: F-16, MC-130, EC-130, HC-130H/N/P, AC-130, E-3, E-8, C-130E/H/J, LC-130, WC-130, C-27, C-17, E-4, T-38, C-141, RC-135, KC-10, KC-135R/E, C-5, C-9, A-10, Airborne Laser (ABL), UH-1, MH-53, MH-47, AH/MH-6J, MH/HH-60, and Predator.

The JMPS is a continuation effort to move the Air Force's MPS and PFPS to the Global Command and Control System (GCCS). JMPS consists of a framework, common capabilities, and unique planning components. The framework effort is co-developed with the USN and USA and will provide the services with a core of mission planning capabilities, common to all Services' aircraft and weapons. It is scaleable, extensible, and configurable. Common capabilities are those that are required by more than one aircraft (within the AF or between services) and can be co-developed to meet the full range of mission planning needs from basic flight planning to planning precision guided munitions on low observable aircraft. A Unique Planning Component (UPC) is software specifically tailored to an aircraft or weapon. Beginning in FY04, total responsibility for Air Force JMPS UPC development for all aircraft programs was consolidated in the Mission Planning Systems program element. The Mission Planning Systems System Program Office (SPO) contracts for system engineering and integration support, framework, common capabilities, and UPCs. JMPS will meet

Exhibit R-2, RDT&E Budget Item Justification

DATE

February 2004

BUDGET ACTIVITY

07 Operational System Development

PE NUMBER AND TITLE

0208006F Mission Planning Systems

interoperability requirements through compliance with the Network Centric Enterprise Services (NCES). The SPO investigates new technologies to remain current and keep pace with evolving threats.

Mission Planning Systems is in Budget Activity 7, Operational System Development, because the program currently supports fielded MPS and PFPS which include transportable, non-deployable, and portable laptop workstations. MPS C2.0, C2.1, C2.2, C2.2d and PFPS 3.0, 3.1, 3.2, 3.3 are operationally fielded to the Combat Air Forces. JMPS v1.0 began development in Jun 99 and delivered in Apr 03. Development of four JMPS common capabilities began in FY02 and continued in FY03. Two additional common capabilities began development in FY03. Many more capabilities begin development in FY04. Two JMPS UPC developments began in FY03 and three more JMPS UPCs started in FY04. Development of framework, common capabilities, and aircraft UPCs will continue in the out years.

(U) **B. Program Change Summary (\$ in Millions)**

	<u>FY 2003</u>	<u>FY 2004</u>	<u>FY 2005</u>
(U) Previous President's Budget	17.002	62.348	144.059
(U) Current PBR/President's Budget	19.795	51.645	136.701
(U) Total Adjustments	2.793	-10.703	
(U) Congressional Program Reductions	-0.114	-10.258	
Congressional Rescissions	-0.180	-0.445	
Congressional Increases	0.000		
Reprogrammings	2.508		
SBIR/STTR Transfer	0.579		

(U) **Significant Program Changes:**

Beginning in FY04, total responsibility for Air Force JMPS UPC development for all legacy aircraft programs was consolidated in the Mission Planning System program.

Exhibit R-2a, RDT&E Project Justification

DATE

February 2004

BUDGET ACTIVITY 07 Operational System Development				PE NUMBER AND TITLE 0208006F Mission Planning Systems			PROJECT NUMBER AND TITLE 3858 Mission Planning Systems (MPS)			
Cost (\$ in Millions)	FY 2003 Actual	FY 2004 Estimate	FY 2005 Estimate	FY 2006 Estimate	FY 2007 Estimate	FY 2008 Estimate	FY 2009 Estimate	Cost to Complete	Total	
3858 Mission Planning Systems (MPS)	19.795	51.645	136.701	143.154	196.749	148.541	96.314	Continuing	TBD	
Quantity of RDT&E Articles	0	0	0	0	0	0	0			

(U) **A. Mission Description and Budget Item Justification**

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The MPS provides comprehensive mission planning tools to conduct missions ranging from day-to-day training, peacetime operations/exercises to complex operations supporting conventional and nuclear armed conflict. The MPS currently supports or will support the following aircraft and associated weapons: B-1, B-2, B-52, F-15, F-16, F-117, F/A-22, U-2, Air to Ground Munition (AGM)-130, AGM-142, Joint Direct Attack Munition (JDAM), Joint Stand Off Weapon (JSOW), Wind Corrected Munition Dispenser (WCMD), Joint Air-to-Surface, Stand off Munition (JASSM), Miniature Air Launched Decoy (MALD), and Global Hawk. Platforms use tailored software called an Aircraft/Weapons/Electronics (A/W/E) that integrate with the MPS core software to specialize the software for their mission.

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The JMPS is a continuation effort to move the Air Force's MPS and PFPS to the Global Command and Control System (GCCS). JMPS consists of a framework, common capabilities, and unique planning components. The framework effort is co-developed with the USN and USA and will provide the services with a core of mission planning capabilities, common to all Services' aircraft and weapons. It is scaleable, extensible, and configurable. Common capabilities are those that are required by more than one aircraft (within the AF or between services) and can be co-developed to meet the full range of mission planning needs from basic flight planning to planning precision guided munitions on low observable aircraft. A Unique Planning Component (UPC) is software specifically tailored to an aircraft or weapon. Beginning in FY04, total responsibility for Air Force JMPS UPC development for all aircraft programs was consolidated in the Mission Planning Systems program element. The Mission Planning Systems System Program Office (SPO) contracts for system engineering and integration support, framework, common capabilities, and UPCs. JMPS will meet interoperability requirements through compliance with the Network Centric Enterprise Services (NCES). The SPO investigates new technologies to remain current and

Exhibit R-2a, RDT&E Project Justification

DATE
February 2004

BUDGET ACTIVITY 07 Operational System Development	PE NUMBER AND TITLE 0208006F Mission Planning Systems	PROJECT NUMBER AND TITLE 3858 Mission Planning Systems (MPS)
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Mission Planning Systems is in Budget Activity 7, Operational System Development, because the program currently supports fielded MPS and PFPS which include transportable, non-deployable, and portable laptop workstations. MPS C2.0, C2.1, C2.2, C2.2d and PFPS 3.0, 3.1, 3.2 , 3.3 are operationally fielded to the Combat Air Forces. JMPS v1.0 began development in Jun 99 and delivered in Apr 03. Development of four JMPS common capabilities began in FY02 and continued in FY03. Two additional common capabilities began development in FY03. Many more capabilities begin development in FY04. Two JMPS UPC developments began in FY03 and three more JMPS UPCs started in FY04. Development of framework, common capabilities, and aircraft UPCs will continue in the out years.

(U) B. Accomplishments/Planned Program (\$ in Millions)	<u>FY 2003</u>	<u>FY 2004</u>	<u>FY 2005</u>
(U) Accomplishments/Planned Programs			
(U) Continue A/W/E development/support/integration for the platforms listed above (legacy system work) until they transition to UPCs	0.123	0.000	
(U) Continue Mission Planning Systems development effort (including but not limited to JMPS development)	6.337	7.365	13.299
(U) Continue Mission Planning Systems (PC-based) Common Capabilities, which could include but is not limited to Global Positioning System (GPS) crypto key, Global Air Traffic Management (GATM), Precision Guided Munition (PGM) migration, Conventional Weapons Planning, Automated Target Data Transfer, Airdrop Planning, Auto Routing, Low Observable Planning, Computer Based Training (CBT), Single Integrated Operational Plan (SIOP), Vertical Profile, Weather Planning, Sensor Prediction, Mission Rehearsal, Electronic Warfare (EW) Planning, and System Security	12.472	19.000	24.000
(U) Continue Responsible Test Organization support	0.863	2.000	4.098
(U) Commence UPC (transitioning from A/W/E listed above) development/support/integration for the platforms listed above to include all UPCs required for JMPS. Specific effort for FY04 includes but is not limited to UPCs for the F-15, F-16, F/A-22, A-10, and JASSM. This work continues through FY05. Starting in FY05 could include, but not limited to bombers, tankers, airlift and special mission aircraft.		23.280	95.304
(U) Total Cost	19.795	51.645	136.701

(U) C. Other Program Funding Summary (\$ in Millions)	<u>FY 2003</u>	<u>FY 2004</u>	<u>FY 2005</u>	<u>FY 2006</u>	<u>FY 2007</u>	<u>FY 2008</u>	<u>FY 2009</u>	<u>Cost to</u>	<u>Total Cost</u>
	<u>Actual</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Complete</u>	
(U) Other Procurement, AF WSC 833040, Theater Air Control System Improvement (TACSI)	13.310	10.781	13.926	14.838	15.457	12.637	13.137	Continuing	TBD
(U) Other Procurement, AF, WSC	0.746	0.510	0.364	0.000	0.000	0.000	0.000	Continuing	TBD

Exhibit R-2a, RDT&E Project Justification	DATE February 2004
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BUDGET ACTIVITY 07 Operational System Development	PE NUMBER AND TITLE 0208006F Mission Planning Systems	PROJECT NUMBER AND TITLE 3858 Mission Planning Systems (MPS)
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(U) C. Other Program Funding Summary (\$ in Millions)

86190A, Initial Spares

(U) Operations & Maintenance (O&M) AF, 0208006F	26.931	75.889	34.642	37.175	35.968	37.081	38.150	Continuing	TBD
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O&M funds for PE 0208006F support the software and hardware maintenance costs of the Mission Planning Systems. These funds also support the maintenance of the following existing operational systems until replaced: Mission Data Preparation System (MDPS) supports conventional and nuclear mission planning, aircraft/weapons avionics loading, compatibility between evolving B-52H avionics, its weapons systems, and USSTRATCOM. O&M funding supported approximately 240 older systems in FY94. By FY05, a similar amount of funding will support over 2,900 mission planning systems worldwide.

(U) D. Acquisition Strategy

The Mission Planning Systems SPO manages Mission Planning Systems at the Electronic Systems Center, Hanscom AFB, Massachusetts. The Mission Planning Systems acquisition strategy integrates military and commercial software hosted on COTS hardware.

JMPS is following an evolutionary acquisition approach. Development began in FY99 and continues from FY02 to FY11. The initial delivery of JMPS occurred in FY03. The Navy is evolving the initial delivery to add components needed to retire the Navy's UNIX-based Tactical Air Mission Planning System in FY04. The Air Force and Navy are further evolving JMPS by continuing to co-develop the framework and development of software components called common capabilities. Common capabilities plug into JMPS and meet the combat mission planning requirements of multiple Air Force, Navy, Marine Corps, and Army platforms. The SPO will tailor each common capability acquisition to meet the joint requirements. Before a platform can migrate to JMPS, the required common capabilities must be built along with the platform's UPC. Beginning in FY04, the SPO picked up responsibility for and executes all AF UPC development for JMPS. The combination of JMPS, required common capabilities, and platform UPC makes up a complete mission planning environment for a platform. The development and integration of JMPS, common capabilities, and UPCs across multiple platforms require a significant systems engineering, integration, and test effort. Consequently, in FY03 the SPO awarded a one year contract to perform systems engineering and support integration across all JMPS related development efforts. In FY04, a 5 year competition Indefinite Delivery Indefinite Quantity (IDIQ) contract will be awarded for framework, UPCs, and common capabilities. A long-term Systems Engineering and Integration contract for integration of the framework, common capabilities, and UPCs will also be awarded.

UNCLASSIFIED

Exhibit R-3, RDT&E Project Cost Analysis										DATE February 2004		
BUDGET ACTIVITY 07 Operational System Development				PE NUMBER AND TITLE 0208006F Mission Planning Systems				PROJECT NUMBER AND TITLE 3858 Mission Planning Systems (MPS)				
<u>(U) Cost Categories</u>	<u>Contract Method & Type</u>	<u>Performing Activity & Location</u>	<u>Total Prior to FY 2003 Cost</u>	<u>FY 2003 Cost</u>	<u>FY 2003 Award Date</u>	<u>FY 2004 Cost</u>	<u>FY 2004 Award Date</u>	<u>FY 2005 Cost</u>	<u>FY 2005 Award Date</u>	<u>Cost to Complete</u>	<u>Total Cost</u>	<u>Target Value of Contract</u>
(U) <u>Product Development</u>												
Northrop Grumman Information Technology (NGIT, formerly Logicon) (JMPS)	C/CPIF	San Pedro, CA	27.443	3.406	Jun-99	6.542	Dec-03	0.000		Continuing	TBD	
BAE Systems (formerly Sanders)	C/CPAF	Nashua, NH	93.300	0.000	Dec-92	0.000		0.000		Continuing	TBD	
Tybrin Corporation	PO	Fort Walton Beach, FL	3.080	0.000	Dec-98	0.000		0.000		Continuing	TBD	
A/W/E and/or UPC development and integration activity	Various	Various	0.615	0.063		11.375	Dec-03	0.000		Continuing	TBD	
SPO Misc* (*Prior year total includes past, inactive contracts)			20.412	1.926		3.219	Nov-03	1.451	Nov-04	Continuing	TBD	
Mission Planning Systems Common Capabilities	C/Various	Various	6.553	6.048		4.656	Dec-03	0.000		Continuing	TBD	
Mission Planning Enterprise Contract Systems Engineering and Integration Support (includes both short and long Term contracts)	C/Various C/TBD	TBD TBD	0.000	0.000		14.732	May-04	109.332		Continuing	TBD	
N/A											0.000	
Subtotal Product Development			151.403	13.271		43.286		128.439		Continuing	TBD	0.000
Remarks:												
(U) <u>Support</u>												
Miscellaneous			15.949	0.000		0.000		0.000		Continuing	TBD	
Software Engineering Institute (SEI)	C/T&M	Pittsburgh, PA	0.100	0.000		0.179	Feb-04	0.187	Feb-05	Continuing	TBD	
Tecolote	C/T&M	Bedford, MA	1.750	0.340		0.375	Nov-03	0.394	Nov-04	Continuing	TBD	
Subtotal Support			17.799	0.340		0.554		0.581		Continuing	TBD	0.000
Remarks:												
(U) <u>Test & Evaluation</u>												
46TW (Eglin AFB)	PO	Eglin AFB, FL	3.445	0.863		2.000	Oct-03	4.098	Oct-04	Continuing	TBD	
N/A											0.000	
Subtotal Test & Evaluation			3.445	0.863		2.000		4.098		Continuing	TBD	0.000

UNCLASSIFIED

Exhibit R-3, RDT&E Project Cost Analysis

DATE

February 2004

BUDGET ACTIVITY	PE NUMBER AND TITLE		PROJECT NUMBER AND TITLE							
07 Operational System Development	0208006F Mission Planning Systems		3858 Mission Planning Systems (MPS)							
Remarks:										
(U) <u>Management</u>										
FFRDC (MITRE)	SS/T&M	Bedford, MA	27.066	3.685	3.378	Oct-03	1.450	Oct-04	Continuing	TBD
SPO Support	C/T&M			1.636	2.427	Oct-03	2.133	Oct-04	Continuing	TBD
Subtotal Management			27.066	5.321	5.805		3.583		Continuing	TBD 0.000
Remarks:										
(U) Total Cost	199.713	19.795	51.645	136.701		Continuing	TBD	0.000		

UNCLASSIFIED

Exhibit R-4a, RDT&E Schedule Detail		DATE February 2004		
BUDGET ACTIVITY 07 Operational System Development	PE NUMBER AND TITLE 0208006F Mission Planning Systems	PROJECT NUMBER AND TITLE 3858 Mission Planning Systems (MPS)		
	<u>FY 2003</u>	<u>FY 2004</u>	<u>FY 2005</u>	
(U) Schedule Profile	3Q			
(U) PFPS 3.3 OT&E timeframe (completed)	3Q			
(U) PFPS 4.0 OT&E (completed)			2Q	
(U) MPS C2.3 Release (planned)		4Q		
(U) JMPS v1.0 Beta S/W Releases (completed)	2Q			
(U) JMPS v1.0 release (completed)	3Q			
(U) Precision Guided Munition Planning System (PGMPS) Common Capability Start	1Q			
(U) Airdrop Planning Common Capability Complete (planned)		4Q		
(U) Integration and Engineering Support Contract Award (planned)		3Q		
(U) F-15 A-D, E UPC Complete (planned)			4Q	
(U) F-16 Blk 30/40/50 UPC Start		2Q		
(U) A-10 UPC Start		2Q		
(U) Autorouting Common Capability Start		3Q		
(U) F/A-22 UPC Start		2Q		
(U) JASSM UPC Start		3Q		
(U) Refueling Common Capability Start (planned)		1Q		
(U) U-2 UPC Start (planned)		2Q		
(U) Global Hawk UPC Start (planned)			1Q	
(U) Tanker, Airlift, Special Mission (AMC platforms) UPC Start (planned)			1Q	
(U) Bomber UPC Start (planned)			1Q	
(U) Predator UPC Start (planned)			1Q	
(U) HH 60 UPC Start (planned)			3Q	