Exhibit R-2, RDT&E Budget Item Justification: PB 2017 Air Force											Date: February 2016	
Appropriation/Budget Activity 3600: *Research, Development, Test & Evaluation, Air Force* / BA 7: *Operational Systems Development*					R-1 Program Element (Number/Name) PE 0208006F / *Mission Planning Systems*							
COST ($ in Millions)	**Prior Years**	**FY 2015**	**FY 2016**	**FY 2017 Base**	**FY 2017 OCO**	**FY 2017 Total**	**FY 2018**	**FY 2019**	**FY 2020**	**FY 2021**	**Cost To Complete**	**Total Cost**
Total Program Element	0.000	58.782	55.835	71.785	0.000	71.785	76.183	75.289	86.987	88.531	Continuing	Continuing
675302: *Precision Aerial Delivery Systems (PADS)*	0.000	4.224	7.390	7.245	0.000	7.245	8.851	3.675	5.021	5.109	0.000	41.515
675380: *Mission Planning Systems (MPS) Modernization*	0.000	54.558	48.445	60.788	0.000	60.788	67.332	71.614	81.966	83.422	Continuing	Continuing
675385: *MPS Increment 5*	0.000	0.000	0.000	3.752	0.000	3.752	0.000	0.000	0.000	0.000	Continuing	Continuing
Program MDAP/MAIS Code: 509												

Note

In FY 2017, the Mobility Air Forces Automated Flight Planning Service (MAFPS), Air Mobility Command (AMC) Transition, and Special Mission Air Combat Command, Combat Search and Rescue (SMACC CSAR) efforts within PE 0208006F, Mission Planning Systems, Project 675380, Mission Planning Systems (MPS) Modernization, were transferred to PE 0208006F, Mission Planning Systems, Project 675385, MPS Increment 5, in order to provide improved transparency for the overarching MPS Major Automated Information System (MAIS) program.

A. Mission Description and Budget Item Justification

Mission planning involves the creation of a flight plan based on multiple inputs including threats, targets, terrain, weather, aircraft performance capability, and configuration. It is an essential task that must be completed prior to any fixed- or rotary wing aircraft sortie. The planner must have the ability to plan weapon, cargo, passenger, and/or fuel delivery, calculate fuel requirements, and assess the route based on known enemy threat location and type. Mission planners must be able to optimize and de-conflict flight routes with other aircraft; review, print, and brief the plan; download pertinent flight information to on-board aircraft avionics; and, conduct dynamic/in-flight re-planning as applicable.

The Mission Planning Systems (MPS) program is a collaborative program with the Navy to leverage technical solutions and business practices for all Department of Defense (DoD) platforms. It provides automated mission planning tools and support for fixed- and rotary wing aircraft and guided munitions. It replaces two closed architecture legacy mission planning systems (UNIX-based MPS (UNIX-MPS) and the PC-based Portable Flight Planning Software (PFPS)), with a single multi-service, open architecture system, frequently referred to as the Joint Mission Planning System (JMPS). MPS will compress the mission planning cycle by providing an improved integrated planning environment, reducing the time required to respond to changing situations and urgent needs such as striking time sensitive/critical targets and conducting combat search and rescue. MPS products have the potential to support all DoD fixed-wing and rotary wing aircraft and is shared with the selected programs in the Navy. MPS will deliver significant benefits to command and control performance by enhancing information superiority for the warfighter and by providing unique capabilities in support of both precision engagement and dominant maneuver.

MPS Increment 5 will complete the initial migration of Air Force platforms from their legacy planning systems to the new Mission Planning System (aka the Joint Mission Planning Systems (JMPS)). It will complete development of three efforts originally started as separate and individual projects with the MPS Modernization development

Exhibit R-2, RDT&E Budget Item Justification: PB 2017 Air Force	Date: February 2016
Appropriation/Budget Activity 3600: *Research, Development, Test & Evaluation, Air Force* / BA 7: *Operational Systems Development*	**R-1 Program Element (Number/Name)** PE 0208006F / *Mission Planning Systems*

effort. Those projects are: 1) Mobility Air Forces Automated Flight Planning Service (MAFPS); 2) Air Mobility Command (AMC) Transition; and 3) Special Mission Air Combat Command, Combat Search and Rescue (SMACC CSAR). These projects, and their associated platforms, are now included in the overarching MPS Major Automated Information Systems (MAIS) program as MPS Increment 5 to provide improved transparency and oversight. As such, MPS Increment 5 is not a new start but a continuation of efforts previously started under the development umbrella of the MPS Modernization project.

In addition to the above, elements of Mission Planning Systems will be utilized to continue development of a Joint Precision Airdrop System - Mission Planning (JPADS-MP) in conjunction with the Army. The JPADS capability provides a planning capability for DoD airdrop requirements. It is the primary airdrop mission planning system for all ballistic airdrop missions, as well as, precision guided airdrops that are required when the mission profile or surface-to-air threat assessment warrants a high-altitude and/or standoff precision delivery. JPADS-MP enables high-altitude, precise airdrop delivery to forward ground forces, mitigating surface-to-air threats, reducing risk of Improvised Explosive Device (IED) and insurgent attack on ground convoys. JPADS allows the warfighter to consider weather, terrain, aircraft capabilities, threat, etc... to accurately deliver payloads to keep the warfighter supplied and in the fight.

FY17 funding will continue the MPS software development program. It will develop pre-, post-, and in-flight mission planning capabilities for Air Force aircraft and weapons migrating from legacy mission planning systems to the Joint Mission Planning System (JMPS), as well as, continuing to provide new capabilities and updates for Air Force platforms/weapon systems that have already migrated to JMPS. These platforms/weapon systems include, but are not limited to, the B-1, C-5, C-17, C-130, HC-130, EC-130, E-3, E-8, F-15, F-16, F-22A, KC-10, KC-46, KC-135, RC-135, HH-60, and their associated weapons (e.g. Small Diameter Bomb (SDB), Joint Direct Attack Munitions (JDAM), Joint Air-to-Surface Standoff Munitions (JASSM), etc.). FY17 funding will also continue the development of the Mobility Air Force Automated Flight Planning Service (MAFPS) to realize fuel savings and other efficiencies. Additionally, it will continue the development of JPADS-MP airdrop software (and other system components) to provide a precision airdrop capability for the C-17, C-130, and other selected platforms as necessary.

The FY 2017 funding request was reduced by $2.3 million to account for the availability of prior year execution balances.

This program is in Budget Activity 7, Operational System Development because this budget activity includes development efforts to upgrade systems that have been fielded or have received approval for full rate production and anticipate production funding in the current or subsequent fiscal year.

Exhibit R-2, RDT&E Budget Item Justification: PB 2017 Air Force					Date: February 2016
Appropriation/Budget Activity 3600: *Research, Development, Test & Evaluation, Air Force* / BA 7: *Operational Systems Development*		**R-1 Program Element (Number/Name)** PE 0208006F / *Mission Planning Systems*			
B. Program Change Summary ($ in Millions)	**FY 2015**	**FY 2016**	**FY 2017 Base**	**FY 2017 OCO**	**FY 2017 Total**
Previous President's Budget	60.679	55.835	78.323	0.000	78.323
Current President's Budget	58.782	55.835	71.785	0.000	71.785
Total Adjustments	-1.897	0.000	-6.538	0.000	-6.538
• Congressional General Reductions	0.000	0.000			
• Congressional Directed Reductions	0.000	0.000			
• Congressional Rescissions	0.000	0.000			
• Congressional Adds	0.000	0.000			
• Congressional Directed Transfers	0.000	0.000			
• Reprogrammings	0.000	0.000			
• SBIR/STTR Transfer	-1.897	0.000			
• Other Adjustments	0.000	0.000	-6.538	0.000	-6.538

Change Summary Explanation

FY17 RDT&E reduced $4.3M for higher Air Force priorities

FY17 RDT&E reduced $2.3M for the availability of prior year execution funds

Exhibit R-2A, RDT&E Project Justification: PB 2017 Air Force			Date: February 2016
Appropriation/Budget Activity 3600 / 7	R-1 Program Element (Number/Name) PE 0208006F / *Mission Planning Systems*	Project (Number/Name) 675302 / *Precision Aerial Delivery Systems (PADS)*	

COST ($ in Millions)	Prior Years	FY 2015	FY 2016	FY 2017 Base	FY 2017 OCO	FY 2017 Total	FY 2018	FY 2019	FY 2020	FY 2021	Cost To Complete	Total Cost
675302: *Precision Aerial Delivery Systems (PADS)*	0.000	4.224	7.390	7.245	0.000	7.245	8.851	3.675	5.021	5.109	0.000	41.515
Quantity of RDT&E Articles	-	-	-	-	-	-	-	-	-	-		

A. Mission Description and Budget Item Justification

Mission planning involves the creation of a flight plan based on multiple inputs including threats, targets, terrain, weather, aircraft performance capability, and configuration. It is an essential task that must be completed prior to any fixed- or rotary wing aircraft sortie. The planner must have the ability to plan weapon, cargo, passenger, and/or fuel delivery, calculate fuel requirement and assess the route based on known enemy threat location and type. Mission planners must be able to optimize and de-conflict flight routes with other aircraft; review, print and brief the plan; download pertinent flight information to on-board aircraft avionics; and, conduct dynamic/in-flight re-planning as applicable.

This project continues the development of a Joint Precision Airdrop System-Mission Planner (JPADS-MP) capability in conjunction with the Army. JPADS provides a planning capability for DoD airdrop requirements. It is the primary airdrop mission planning system for all ballistic airdrop missions as well as precision guided airdrops that are required when the mission profile or surface-to-air threat assessment warrants a high-altitude and/ or standoff precision delivery. It enables high-altitude, precise airdrop delivery to forward ground forces, while mitigating surface-to-air threats, reducing risk of exposure to Improvised Explosive Devices (IEDs) and insurgent attack on ground convoys. JPADS allows the warfighter to consider weather, terrain, aircraft capabilities, threat, etc., to accurately deliver payloads to combat and other friendly forces.

The Consolidated Airdrop Tool (CAT) is the key JPADS-MP software deliverable. It will increase the accuracy of airdrop mission planning by improving aircraft, payload, and chute specific calculations along with weather analysis visualization tools specifically adapted for airdrop. Future initiatives are designated to achieve automation of airdrop planning and execution to reduce task saturation in the cockpit and support Air Mobility Command's (AMC) objective of moving to a two-man cockpit. These efforts include the ability to automatically receive and use real-time winds in any location, calculation of a release point and airdrop in a single pass, the ability to conduct real-time objective area analysis to calculate probable damage estimates and execute dynamic re-tasking, the ability to conduct post-drop assessments, and the implementation of new technologies (e.g. Service Oriented Architecture (SOA) Touch Screen environment).

In addition the Air Force Research Laboratories (AFRL) led Precision Airdrop (PAD) Flagship Capability Concept (FCC) effort will transition technology for new capabilities into various CAT software release/deliverables. The PAD FCC is also charged with updating airdrop platforms and airdrop related systems to improve accuracy across all airdrop mission types. The following capabilities are planned for development within the JPADS-MP program:

- Wireless Gate Release System (WGRS)
- Local Area Prediction System (LAPS)
- Airdrop Damage Estimate (ADE)
- Combination Airdrop

Exhibit R-2A, RDT&E Project Justification: PB 2017 Air Force		Date: February 2016
Appropriation/Budget Activity 3600 / 7	**R-1 Program Element (Number/Name)** PE 0208006F / *Mission Planning Systems*	**Project (Number/Name)** 675302 / *Precision Aerial Delivery Systems (PADS)*

- Support of new map projections including polar stereographic
- Advanced Launch Acceptable Range (LAR)
- Drogues and Wireless Activation Device (WAD)
- Automation and Health Status/Monitoring
- Autonomous Guidance Unit (AGU) Data Transfer updates
- Bundle Tracking
- Service Oriented Architecture (SOA) to enable seamless data communication between devices
- Support for ParaNavSys, Dropsonde Optimization
- Transference of wind along a flight path
- Replacement of weather assimilation engine with Kalman Filter
- Implementation of new weather observation sources (i.e. Light Detection and Ranging (LIDAR) and RADAR sensing capabilities) for real-time weather
- Simulator and rehearsal mode for Aircraft Weapon System Trainers (WST)

FY17 funding continues CAT v5 development and testing to provide precision and conventional airdrop capabilities including, but not limited to, Airdrop Damage Estimate (ADE), Combination Airdrop, Personnel Airdrop, Unified Mission Configuration Editor, Falconview Overlays and Advanced LAR and Failure Footprints, Kalman Filter Implementation and calculation optimization, Humanitarian airdrop, and bundle tracking for AF and other services (e.g. the Army) aircraft platforms. FY17 will also begin CAT v6.x development efforts.

This program is in Budget Activity 7, Operational System Development, which includes development efforts to upgrade systems that have been fielded or have received approval for full rate production, and anticipate production funding in the current or subsequent fiscal year.

B. Accomplishments/Planned Programs ($ in Millions)	FY 2015	FY 2016	FY 2017
Title: JPADS-MP Phase I	4.224	7.390	7.245
Description: Continues development of a JPADS capability for precise, high altitude delivery of material to forward ground forces. ***FY 2015 Accomplishments:*** - Delivered CAT v3.0.3 which updated CAT v3.0 to include Local Area Prediction System terrain balancing - Completed development and began testing of CAT v3.2 - Introduced Service Oriented Architecture (SOA), Combination Airdrop, Air Damage Estimate, Unified View, Precision Weather for Conventional Airdrop, Guidance Failure Footprint, and completed integration of Army's Mission Planning Tool - Completed development of CAT v4.1 for initial migration of the CAT v3.2 baseline to a JMPS Framework - Began development of CAT v4.2 which expands precision airdrop capabilities for accurate calculation of established operational requirements - CAT v4.2 capabilities include, but are not limited to: Support for advanced failure footprints for guided delivery systems, assessment of airdrop damage estimates based on in-flight constraints identified by the aircrew during improved container			

Exhibit R-2A, RDT&E Project Justification: PB 2017 Air Force		Date: February 2016
Appropriation/Budget Activity 3600 / 7	**R-1 Program Element (Number/Name)** PE 0208006F / *Mission Planning Systems*	**Project (Number/Name)** 675302 / *Precision Aerial Delivery Systems (PADS)*

B. Accomplishments/Planned Programs ($ in Millions)	FY 2015	FY 2016	FY 2017
delivery system (CDS) airdrops, new 45 foot parachute for High Speed CDS airdrops, Launch Acceptable Range calculation for Ultra-Lightweight guided delivery systems, 2K Halo, Mass CDS, and improved user workflows, Enhanced Forecast-Sonde (Non-LAPS Solution), Initial Applications for Touch Screen (Tablet) User Interface, Marine Helos, and Dropsonde footprint updates ***FY 2016 Plans:*** - Complete operational test of CAT v3.2 for fielding in FY16 - Complete testing of CAT v4.1 (migrates CAT v3.2 baseline to a JMPS Framework) - Complete development of CAT v4.2 (expands precision airdrop capabilities for C-130 and C-17 platforms) - Begin development of CAT v5.0 to continue evolution of CAT S/W into an automated suite of airdrop mission tools (CAT v5.0 capabilities include, but are not limited to: Initial Kalman-Filter Implementation, Guided Delivery System Updates, Mission Execution Workflow Updates, CDS HALO, Automation Enhancements, Network Automation, Humanitarian Airdrop, Calculation Optimizations and Guided Airdrop Damage Estimation (GADE)) ***FY 2017 Plans:*** - Will complete fielding of CAT v4.1 (for C-130 and C-17) - Will complete testing and fielding (for C-130) of CAT v4.2 - Will complete development of CAT v5.0 - Will complete testing of CAT v5.0 - Will award contracts and initiate development of CAT v6.x			
Accomplishments/Planned Programs Subtotals	4.224	7.390	7.245

C. Other Program Funding Summary ($ in Millions)

Line Item	FY 2015	FY 2016	FY 2017 Base	FY 2017 OCO	FY 2017 Total	FY 2018	FY 2019	FY 2020	FY 2021	Cost To Complete	Total Cost
• OPAF: BA07: Line Item # 833170: *Mission Planning Systems*	8.400	5.944	6.329	0.000	6.329	6.026	6.345	6.456	6.574	Continuing	Continuing

Remarks

D. Acquisition Strategy

The MPS PADS efforts are developed and fielded using a variety of contracting instruments. Efforts to accomplish activities such as software development, systems engineering and integration, training, and support are completed using competitively awarded contracts (e.g. Cost Plus Award Fee (CPAF), Fixed Price (FP)).

Program Management Administration (PMA) contracts are awarded competitively and consist of various types of contracts at various locations.

Exhibit R-2A, RDT&E Project Justification: PB 2017 Air Force		Date: February 2016
Appropriation/Budget Activity 3600 / 7	**R-1 Program Element (Number/Name)** PE 0208006F / *Mission Planning Systems*	**Project (Number/Name)** 675302 / *Precision Aerial Delivery Systems (PADS)*

MITRE, a Federally Funded Research and Development Center (FFRDC) contractor, provides technical support via a no fee for service contract.

Other efforts are accomplished using Purchase Orders (PO) and Military Interdepartmental Purchase Requests (MIPR). As an example, a portion of funding is transferred via MIPR to the Defense Information Systems Agency's Defense Information Technology Contracting Organization (DISA/DITCO) who contracts for AFLCMC/HBM at a fee.

For the efforts listed above, the Air Force Life Cycle Management Center at Hanscom AFB (AFLCMC/HB) is the Contracting Authority and provides Contracts, Legal, and Comptroller Support.

Air Force Program Executive Officer (PEO) for Battle Management (AFPEO/BM) is the PEO and Milestone Decision Authority (MDA) for the PADS program.

E. Performance Metrics

Please refer to the Performance Base Budget Overview Book for information on how Air Force resources are applied and how those resources are contributing to Air Force performance goals and most importantly, how they contribute to our mission.

Exhibit R-3, RDT&E Project Cost Analysis: PB 2017 Air Force			Date: February 2016
Appropriation/Budget Activity 3600 / 7	**R-1 Program Element (Number/Name)** PE 0208006F / *Mission Planning Systems*	**Project (Number/Name)** 675302 / *Precision Aerial Delivery Systems (PADS)*	

Product Development ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2015 Cost	FY 2015 Award Date	FY 2016 Cost	FY 2016 Award Date	FY 2017 Base Cost	FY 2017 Base Award Date	FY 2017 OCO Cost	FY 2017 OCO Award Date	FY 2017 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Software Development	MIPR	Various : Various	0.000	3.197	Nov 2014	6.294	Nov 2015	5.221	Nov 2016	0.000		5.221	Continuing	Continuing	TBD
Systems Engineering and Integration	C/CPAF	Leidos, Inc. : Reston, VA	0.000	0.856	Nov 2014	0.669	Nov 2015	1.586	Nov 2016	0.000		1.586	Continuing	Continuing	TBD
		Subtotal	0.000	4.053		6.963		6.807		0.000		6.807	-	-	-

Support ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2015 Cost	FY 2015 Award Date	FY 2016 Cost	FY 2016 Award Date	FY 2017 Base Cost	FY 2017 Base Award Date	FY 2017 OCO Cost	FY 2017 OCO Award Date	FY 2017 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Cost Estimating	C/T&M	Tecolote Inc : Goleta, CA	0.000	0.015	Nov 2014	0.015	Nov 2015	0.015	Nov 2016	0.000		0.015	Continuing	Continuing	TBD
		Subtotal	0.000	0.015		0.015		0.015		0.000		0.015	-	-	-

Test and Evaluation ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2015 Cost	FY 2015 Award Date	FY 2016 Cost	FY 2016 Award Date	FY 2017 Base Cost	FY 2017 Base Award Date	FY 2017 OCO Cost	FY 2017 OCO Award Date	FY 2017 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Type I Training	C/FP	Spiral Solutions & Technologies : Bellevue, NE	0.000	0.074	Nov 2014	0.076	Nov 2015	0.078	Nov 2016	0.000		0.078	Continuing	Continuing	TBD
		Subtotal	0.000	0.074		0.076		0.078		0.000		0.078	-	-	-

Management Services ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2015 Cost	FY 2015 Award Date	FY 2016 Cost	FY 2016 Award Date	FY 2017 Base Cost	FY 2017 Base Award Date	FY 2017 OCO Cost	FY 2017 OCO Award Date	FY 2017 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Program Management Administration	Various	Various : Various	0.000	0.082	Nov 2014	0.336	Nov 2015	0.345	Nov 2016	0.000		0.345	Continuing	Continuing	TBD
		Subtotal	0.000	0.082		0.336		0.345		0.000		0.345	-	-	-

Exhibit R-3, RDT&E Project Cost Analysis: PB 2017 Air Force			Date: February 2016
Appropriation/Budget Activity 3600 / 7	R-1 Program Element (Number/Name) PE 0208006F / *Mission Planning Systems*	Project (Number/Name) 675302 / *Precision Aerial Delivery Systems (PADS)*	

	Prior Years	FY 2015		FY 2016		FY 2017 Base		FY 2017 OCO		FY 2017 Total	Cost To Complete	Total Cost	Target Value of Contract
Project Cost Totals	0.000	4.224		7.390		7.245		0.000		7.245	-	-	-

Remarks

Exhibit R-4, RDT&E Schedule Profile: PB 2017 Air Force		Date: February 2016
Appropriation/Budget Activity 3600 / 7	**R-1 Program Element (Number/Name)** PE 0208006F / *Mission Planning Systems*	**Project (Number/Name)** 675302 / *Precision Aerial Delivery Systems (PADS)*

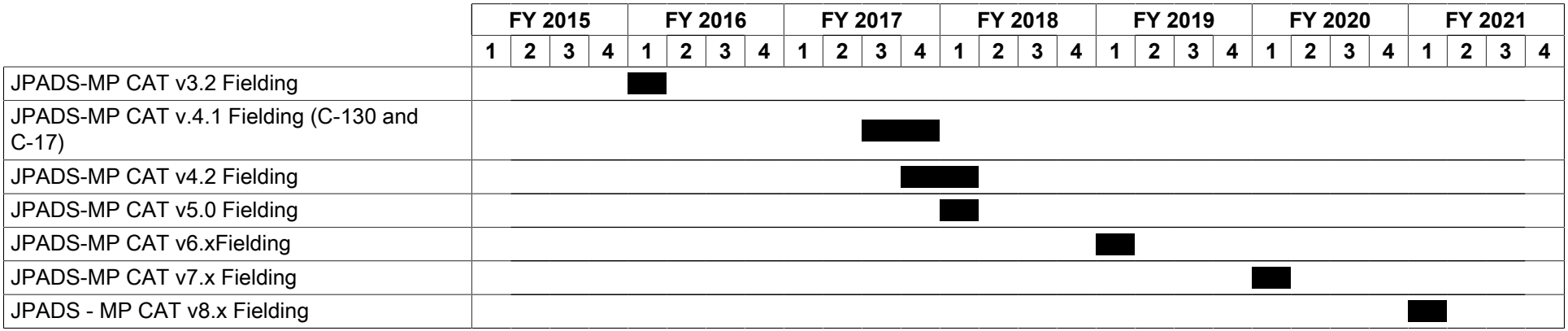

Exhibit R-4A, RDT&E Schedule Details: PB 2017 Air Force		Date: February 2016
Appropriation/Budget Activity 3600 / 7	**R-1 Program Element (Number/Name)** PE 0208006F / *Mission Planning Systems*	**Project (Number/Name)** 675302 / *Precision Aerial Delivery Systems (PADS)*

Schedule Details

	Start		End	
Events	**Quarter**	**Year**	**Quarter**	**Year**
JPADS-MP CAT v3.2 Fielding	1	2016	1	2016
JPADS-MP CAT v.4.1 Fielding (C-130 and C-17)	3	2017	4	2017
JPADS-MP CAT v4.2 Fielding	4	2017	1	2018
JPADS-MP CAT v5.0 Fielding	1	2018	1	2018
JPADS-MP CAT v6.xFielding	1	2019	1	2019
JPADS-MP CAT v7.x Fielding	1	2020	1	2020
JPADS - MP CAT v8.x Fielding	1	2021	1	2021

Exhibit R-2A, RDT&E Project Justification: PB 2017 Air Force			Date: February 2016
Appropriation/Budget Activity 3600 / 7	R-1 Program Element (Number/Name) PE 0208006F / *Mission Planning Systems*	Project (Number/Name) 675380 / *Mission Planning Systems (MPS) Modernization*	

COST ($ in Millions)	Prior Years	FY 2015	FY 2016	FY 2017 Base	FY 2017 OCO	FY 2017 Total	FY 2018	FY 2019	FY 2020	FY 2021	Cost To Complete	Total Cost
675380: *Mission Planning Systems (MPS) Modernization*	0.000	54.558	48.445	60.788	0.000	60.788	67.332	71.614	81.966	83.422	Continuing	Continuing
Quantity of RDT&E Articles	-	-	-	-	-	-	-	-	-	-		

Note

In FY 2017, the Mobility Air Forces Automated Flight Planning Service (MAFPS), Air Mobility Command (AMC) Transition, and Special Mission Air Combat Command, Combat Search and Rescue (SMACC CSAR) efforts within PE 0208006F, Mission Planning Systems, Project 675380, Mission Planning Systems (MPS) Modernization, were transferred to PE 0208006F, Mission Planning Systems, Project 675385, MPS Increment 5, in order to provide improved transparency for the overarching MPS Major Automated Information System (MAIS) program.

A. Mission Description and Budget Item Justification

Mission planning involves the creation of a flight plan based on multiple inputs including threats, targets, terrain, weather, aircraft performance capability, and configuration. It is an essential task that must be completed prior to any fixed- or rotary wing aircraft sortie. The planner must have the ability to plan weapon, cargo, passenger, and/or fuel delivery, calculate fuel requirements, and assess the route based on known enemy threat location and type. Mission planners must be able to optimize and de-conflict flight routes with other aircraft; review, print and brief the plan; download pertinent flight information to on-board aircraft avionics; and, conduct dynamic/in-flight re-planning as applicable.

This project focuses on modernizing MPS to support Combat Air Forces (CAF) and Mobility Air Forces (MAF), including the development, test and sustainment of Mission Planning Environments (MPEs) to support the B-1, C-5, C-17, C-130, HC-130, EC-130, E-3, E-8, F-15, F-16, F-22A, KC-10, KC-46, KC-135, RC-135, HH-60 other platforms, Framework (FW) and all Common Component (CCs) software tools for mission requirements. Activities also include studies and analysis to support both current program planning and execution and future program planning. MPS Modernization efforts are as follows:

a. CAF MPS Modernization: These development efforts modernize CAF MPEs. The modernization effort will provide new and improved mission planning capability for individual Operational Flight Program (OFP) requirements, such as new weapons, avionics upgrades, communications systems, etc. The OFPs requiring MPE updates under the CAF modernization effort include, but are not limited to, B-1 (Sustainment Blocks 15, 16, 16a, 17 and 18), F-15 (Suites 7, 8, 9 and 10), F-16 Block 30 (System Capability Upgrade [SCU] 8, and 9, F-16 Block 40/50 (M6.1, M6.5, M7.1, and M7.2) and F-22 (Increments 3.2B, 3.2M, and 4.0). CAF modernization also includes updates to mission planning capabilities supporting associated weapons including, but not limited to, Small Diameter Bomb (SDB-II), Joint Direct Attack Munitions (JDAM) and the Joint Air-to-Surface Standoff Missile (JASSM). Finally, CAF modernization will address required improvements to CAF related JMPS MPE CCs, including Weapon Planning Software (WPS), Electronic Warfare CC (EWCC), GPS Crypto (including GPS M-code), Weather CC, etc. CAF MPE Modernization includes, but is not limited to, the following platform efforts:

1) F-15 Modernization Phase II: This modernization program consists of multiple software development efforts driven by OFP updates for F-15 Suites 7, 8, and 9. Suite 7 MPE capabilities include, but are not limited to, Data Transfer Device (DTD) improvements, updates for new features in weapons such as Joint Direct Attack Munition (JDAM), Small Diameter Bomb I and II (SDB I and II), AIM-9X, AIM-120D, and Network Enable Weapon support elements (e.g. key handling, weapon data link, and

Exhibit R-2A, RDT&E Project Justification: PB 2017 Air Force		Date: February 2016
Appropriation/Budget Activity 3600 / 7	**R-1 Program Element (Number/Name)** PE 0208006F / *Mission Planning Systems*	**Project (Number/Name)** 675380 / *Mission Planning Systems (MPS) Modernization*

Link 16). It will also include enhancements to the synthetic aperture radar planning tool (SAR-PT) and the global area reference tool as well as radar modernization updates (e.g. combat identification, radar planning tool enhancements). Development efforts for F-15 Suite 8 include, but are not limited to, integration of B61 Life Extension Program (LEP), feature updates for several weapons, and the expansion of Link-16 messages sets. F-15 Suite 9 MPE will include a variety of updates and enhancements for weapons and aircraft systems to include, but are not limited to, a new Advanced Dual Core Process II (ADCP-II) computer as well as Digital Transfer Device/Modules (DTD/DTM) modernization.

2) F-16 Block 30 Modernization Phase I: The F-16 Block 30 modernization effort will support new aircraft capabilities established in OFPs for the SCU 8 and SCU 9. The effort will also migrate the F-16 Block 30 Mission Planning Environment (MPE) to the Windows 7 operating system and the current version of the MPS Framework. SCU 8 system capabilities include, but are not limited to, the addition of Helmet Mounted Integrated Targeting (HMIT), Small Diameter Bomb (SDB), the AIM-120D missile variant and Center Display Unit (CDU) Integration. SCU 9 capabilities include, but are not limited to, finishing HMIT and CDU integrations, support of Threat Symbology/Correlation (TS/C) file import (commonality with F-16 Block 40/50), Eagle Passive/Active Warning Survivability System (EPAWSS) and the addition of the Laser JDAM.

3) F-16 Block 40/50 Modernization Phases I&II: The F-16 Block 40/50 modernization efforts will provide the capability to plan/utilize a number or OFP-driven capabilities in the platform. The modernization efforts will support new aircraft capabilities established in OFPs for M7.1 and M7.2. These capabilities include, but are not limited to, integrating the Universal Armament Interface (UAI) with the most recent version of Weapons Planning Software (WPS) to give the platform the ability to plan missions for any type of Network Enabled Weapon (NEW). It will also provide for UAI compliance with the Small Diameter Bomb (SDB; GBU-39) and the Laser Joint Direct Attack Munition (LJDAM; GBU-54). The modernization effort will also provide for the use of the Advanced Identification Friend or Foe (AIFF) Mode 5 capability in the F-16 Blk 40/50. AIFF will allow use of enhanced authentication and verification of friendly signals through the incorporation of cryptographically secured signals. It will also introduce Automatic Dependent Surveillance-Broadcast Out (ADS-B Out) technology and facilitate compliance with standards for the Next Generation Air Transportation System (NextGen), JASSM-Extended Range (JASSM-ER), and Multifunctional Information Distribution System (MIDS) upgrades. The development effort will also migrate the F-16 Block 40/50 MPE to the Windows 7 operating environment.

4) F-22 Modernization Phase I: The F-22 Modernization program includes OFP-driven software updates v13. These enhancements include, but are not limited to, the addition of improved capabilities for the AIM-9X and AIM-120D, the incorporation of additional electronic protection tasks, combat identification improvements, addition of an Inter-flight Data Link Gateway, and incorporation of the synthetic aperture radar planning tool. Additionally, other new and emerging OFP-generated requirements will be addressed as identified by the operational user(s). Other Common Component (CC) updates will also be completed as required.

5) B-1 Modernization Phase I&II: The B-1 Modernization program includes OFP-driven software updates for Releases 7.0, 8.0, 9.0 and 11.0. It will incrementally update the platform MPE and provide for integration with the Reliability and Maintainability Improvement Program (RMIP)/Inertial Navigation System Replacement (INSR), Laptop Computer Targeting Pod Phase 2 (LCTP), Integrated Battle Station (IBS) elements (including Fully Integrated Data Link(FIDL)/Visual Situation Display Upgrade (VSDU)), Central Integrated Test System Upgrade (CITS), and related follow on enhancements. Additionally, it will migrate the B-1 MPE to the Windows 7 operating system and convert the B-1 Unit Planning Component (UPC) Visual Basic (VB) code to C# .NET.

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b. MAF MPS Modernization: These development efforts modernize MAF MPEs. The modernization effort will provide new and improved mission planning capability for individual Operational Flight Program (OFP), Global C2, and AMC fuel efficiency requirements.

1. Special Missions Air Combat Command (SMACC) Modernization Phase I: This effort includes two programs: the SMACC Phase I Modernization Program and the SMACC Combat Search and Rescue (CSAR) Program. The SMACC Modernization Program includes development, testing, and fielding of MP software for the E-3 DRAGON, E-3/E-8, RC-135 and EC-130. The SMACC CSAR MPE program will transition the HH-60 and HC/MC-130P/N/J CSAR mission planning functionality, tools, and plug-ins from the legacy Portable Flight Planning Software (PFPS) to the Mission Planning Systems (MPS) environment. This SMACC CSAR effort will be completed in MPS Increment 5, Project 675385, described elsewhere in this document.

2. MAF Modernization: This effort builds upon the fielded E-8 MPE to provide new and improved mission planning capabilities for the MAF fleet (e.g. C-5, C-130, KC-10, etc.) as required to meet OFP, fuel efficiency, and global planning net-centric requirements. It includes, but is not limited to, enhanced capabilities to accommodate avionics upgrades, improved communications systems, interfaces with command and control systems, new parachutes, etc. for various MAF platforms. Development efforts also include, but are not limited to, integrating improvements to MAF related Common Components (CCs). Examples of these CCs include, but are not limited to, MAF tools, such as Assault Zone CC and the Air Refueling Tool (ART) CC. The AMC Transition efforts will be completed in the MPS Increment 5 described in the final section of this document.

3. Mobility Air Forces Automated Flight Planning Service (MAFPS): This effort includes development of a centralized/net-centric global mobility flight planning capability, which will provide significant fuel savings through automated flight route, airspeed, and altitude optimization utilizing aircraft performance, air traffic management, weather, and other data.

c. Test, Training, and Certification: Continues all MPS-related integration, test, and certification activities for all CAF and MAF platforms.

d. Program Support: Continues all program office management operations and support activities to ensure the timely development, testing, and delivery of mission planning systems to the warfighter.

FY17 funding will continue the development and modernization of Mission Planning Environments (MPEs) and related planning capabilities for a variety of Air Force aircraft and weapons platforms for the CAF, MAF, and other operational users. The modernization programs will be closely aligned and compatible with the capabilities being developed for the platforms within their respective and regularly scheduled Operational Flight Programs (OFPs).

The FY 2017 funding request was reduced by $2.3 million to account for the availability of prior year execution balances.

This program is in Budget Activity 7, Operational System Development because this budget activity includes development efforts to upgrade systems that have been fielded or have received approval for full rate production and anticipate production funding in the current or subsequent fiscal year.

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B. Accomplishments/Planned Programs ($ in Millions)	FY 2015	FY 2016	FY 2017
Title: F-15 Modernization Phase II&III	11.138	9.184	10.787
Description: Continues the modernization of previously fielded F-15 Mission Planning Environments (MPEs) to enable efficient use of new and improved capabilities being developed in platform Operational Flight Programs (OFPs). ***FY 2015 Accomplishments:*** - Completed Operational Testing (OT) and fielding of v3.2 in Q1 - Finished initial development of v4.0 - Completed Final Qualification Testing (FQT) and entered in Development Testing (DT) of v4.0 - Fielded a v4.0 mid-DT release to address risks with SDB-II implementation - Development efforts for v4.0 included, but were not limited to: Integration of B61 Life Extension Program (LEP), feature updates for several weapons, and the expansion of Link-16 messages sets - Began MPE v5.0 development that includes Digital Transfer Device/Modules (DTD/DTM) modernization, MIDS-JTRS, and radar library updates ***FY 2016 Plans:*** - Complete Developmental Testing (DT) and Operational Testing (OT) of MPE v4.0. Development efforts include, but are not limited to, -- Integration of B61 Life Extension Program (LEP) -- Feature updates for several weapons, SDB II mission planning, and the expansion of Link-16 messages sets - Continue development of MPE v5.0 which includes: -- Digital Transfer Device/Modules (DTD/DTM) modernization -- Radar library updates - Initiate follow-on efforts for F-15 MPE v6.0 with focus on requirements definition of systems interfacing with aircraft program - Initiate content definition for v6.0 (consider Eagle Passive/Active Warning Survivability System (EPAWSS), MIDS-JTRS, RWR Test & Integration, and Delta 0+/PASS) ***FY 2017 Plans:*** - Will complete FQT and DT on MPE v5.0 - Will continue requirements definition and development of v6.0			
Title: F-16 Block 30 Modernization Phase I	1.218	0.209	0.000
Description: Continues the modernization of previously fielded F-16 Block 30 MPEs to enable efficient use of new and improved capabilities being developed in the OFPs. ***FY 2015 Accomplishments:***			

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B. Accomplishments/Planned Programs ($ in Millions)	FY 2015	FY 2016	FY 2017
- Completed Development Evaluation 2 Testing of SCU 9 ***FY 2016 Plans:*** - Complete Development Testing, Operational Testing and field SCU 9 - Complete development and full qualification testing (FQT) ***FY 2017 Plans:*** No RDT&E funding requested in FY17.			
Title: F-16 Block 40/50 Modernization Phases I and II ***Description:*** Continues the modernization of previously fielded F-16 Block 40/50 MPEs to enable efficient use of new and improved capabilities being developed in the OFPs. ***FY 2015 Accomplishments:*** - Completed Development Evaluation 2 Testing of M7.1 ***FY 2016 Plans:*** - Complete development testing, operational testing, and fielding of M7.1+ - Complete design and begin coding MPS M7.2 for first Operational Flight Plan (OFP) ground testing - Capabilities for M7.2+ include Automatic Dependent Surveillance-Broadcast (ADSB) Out, JASSM-ER, UAI Compliance for SDB II, and MIDS upgrades ***FY 2017 Plans:*** - Will complete coding and two software development builds for MPS M7.2 for first and second OFP ground and flight test (FTR1 and FTR2)	3.646	1.109	0.748
Title: F-22 Modernization Phase I ***Description:*** Continues the modernization of previously fielded F-22 MPEs to enable efficient use of new and improved capabilities being developed in the OFPs. ***FY 2015 Accomplishments:*** - Fielded v12.1 Mission Planning Environment (MPE) - v12.1 capabilities include AIM-9x Basic Update, Intra-Flight Data Link (IFDL) Gateway, Candidates I6 and M3, and the Radar Prediction Tool - Continued development of v13.0	4.061	4.025	9.575

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B. Accomplishments/Planned Programs ($ in Millions)	FY 2015	FY 2016	FY 2017
- Capabilities for v13.0 include, but are not limited to: Addition of AIM-9X and AIM-120D, incorporation of additional Electronic Protection Tasks, Combat Identification improvements, and the Synthetic Aperture Radar Planning Tool ***FY 2016 Plans:*** - Complete MPE v13.0 FQT - Complete DT and enter OT - Capabilities for v13.0 include, but are not limited to: Addition of AIM-9X and AIM-120D, incorporation of additional Electronic Protection Tasks, Combat Identification improvements, and the Synthetic Aperture Radar Planning Tool - Begin MPE v.14.0 requirements definition interfacing with the aircraft program - Award delivery order for v.14.0 ***FY 2017 Plans:*** - Will field MPE v13.0 - Will continue development for MPE v14.0 - MPE v14.0 will be built from the v13.1 baseline and will integrate with requirement established through OFP Inc 3.2M - New Inc 3.2M capabilities are planned to include: Mark XIIA System with Joint Requirements Oversight Council (JROC) mandated Mode 5/S Identification Friend or Foe (IFF, Communication Navigation Surveillance (CNS)/Air Traffic Management (ATM) upgrade designated as Tactical Mandates (TACMAN) and Link 16 transmit capabilities, Electronic Protection updates, Combat ID updates, and incorporation of OFP Update 7			
Title: B-1 Modernization Phase I&II ***Description:*** Continues the modernization of previously fielded B-1 MPEs to enable efficient use of new and improved capabilities being developed in the OFPs. ***FY 2015 Accomplishments:*** - Conducted Delta Full Qualification Testing (DFQT) for Rel 8.0 (which updated de-clutter configuration tool and defensive threat rings - Completed DT/OT to support SB-16A requirements ***FY 2016 Plans:*** - Field Rel 8.0 - Incorporate FIDL Editor and Draw File into Rel 8.0 - Continue development of Rel 9.0 that will update the migration to Framework v. 1.5.3xx, SDC 3.5 and operation in WoW64 environment - Accomplish Rel 9.0 Initial Design Review (IDR) 1 - Release Rel 9.0 Beta 1	5.021	5.858	9.182

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B. Accomplishments/Planned Programs ($ in Millions)	FY 2015	FY 2016	FY 2017
- Complete the transition to Universal Armament Interface (UAI) Mission Planner 2 version with Fully Integrated Data Link (FIDL) updates, Integrated Battle Station (IBS) replacement, Long Range Air to Surface Missile (LRASM), and replacement of Redundant Power Supply (RPS) Super microcomputer for SB-17 - Continue development of LRASM - Accomplish System Integration Lab (SIL) test - Incorporate FIDL Editor and Draw File into Rel 9.0 - Release Rel 9.0 Beta 2 and finalize detailed design - Release Rel 9.0 Beta 3 and finalize MPE integration prior to FQT for SB-17 - Prepare Delivery Order (DO) for Rel 11.0 - Accomplish Rel 11.0 Configuration Control Board (CCB) - Release Rel 11.0 Request For Proposal (RFP) ***FY 2017 Plans:*** - Will award new Delivery Order (DO) for Rel 11.0 - Will continued development of Rel 9.0 - Will accomplish Technical Requirements Review (TRR) - Will perform Final Quality Test (FQT) - Will complete a 63-119 review - Will formalize Developmental Test (DT) and scenario testing			
Title: MAF Modernization	17.354	11.200	16.334
Description: Migrates Airlift (C-5), Tanker (KC-135 and KC-10), and Air Drop (C-17, C-130) platforms from their legacy mission planning systems to the Joint Mission Planning Systems (JMPS). Develops KC-46 JMPS Mission Planning Environment (MPE). Also, once fielded, the program will keep MPEs current via modernization upgrades to account for changes in aircraft operational flight profiles (OFPs) and Global Command and Control Changes. ***FY 2015 Accomplishments:*** - Completed preliminary qualification testing of Global Mobility (GM) Release 1.1 (for airlift function via the C-5) - Completed preliminary qualification testing of GM 1.2 for the KC-10 and KC-135 (for the air refueling capability) - Finalized preparation to complete the final formal qualification testing of GM Release 1.1 and 1.2 - Continued development GM Release 1.3 to account for the airdrop capability (C-17 and C-130 aircraft) ***FY 2016 Plans:*** - Complete all activities for successful GM releases 1.1 and 1.2 fielding, to include all necessary equipment delivery and training			

Exhibit R-2A, RDT&E Project Justification: PB 2017 Air Force		Date: February 2016
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B. Accomplishments/Planned Programs ($ in Millions)	FY 2015	FY 2016	FY 2017
- Continue development for GM release 1.3, the development will be completed and the effort moved into formal Government testing, with preparations being made for entry into the Initial Operational Test and Evaluation (IOT&E) - Begin development for GM release 1.4 (KC-46 aircraft) - Begin the fielding of GM 1.1 and GM 1.2 to incorporate changes to the platform operational flight profiles and global command and control changes ***FY 2017 Plans:*** - Will complete the GM 1.4 development, formal qualification testing, and initiate formal Government developmental testing - Will continue with engineering releases of the new capabilities leading towards a formal qualification test Note: Activities for GM releases 1.1 and 1.3, previously described in FY15 Accomplishments and FY16 Plans, are not included in this FY 2017 plan description. These efforts will be continued in MPS Increment 5, Project 675385.			
Title: Special Mission ACC (SMACC)	6.823	10.576	9.684
Description: Continues the modernization of previously fielded mission planning software environments for the E-3, E-8, E-4, EC-130, and RC-135. This also includes the SMACC CSAR MPS program which transitions the PFPS-based HH-60 and HC/MC-130 CSAR mission planning functionality, tools, and plug-ins to Joint Mission Planning Systems (JMPS) environment. ***FY 2015 Accomplishments:*** - Completed testing of the EC-130 Version 1 MPE and RC-135 Version 3 and fielded per schedule - Began development of the MPE for HH-60 and HC/MC-130s within the SMACC CSAR program - Developed two CSAR tools: the Search Pattern Tool and the Survivor Overlay Broadcast Tool ***FY 2016 Plans:*** - Deliver E-3/E8 v2.1. Complete development and testing of EC-130H v2.0 - Complete development of the E-3 DRAGON and enter formal government developmental test - Continue development of the SMACC CSAR MPE - Complete and integrate the Search Pattern Tool into the SMACC CSAR MPE - Five SMACC CSAR Intermediate Design Reviews are scheduled for this year ***FY 2017 Plans:*** - Will complete development and field: E-3 DRAGON v3.0 and EC-130 v2.0 - Will develop follow-on MPEs for E-3 DRAGON v3.2 and EC-130 v2.1 - Will complete development and enter formal government developmental test			

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B. Accomplishments/Planned Programs ($ in Millions)	FY 2015	FY 2016	FY 2017
Note: Activities for SMACC CSAR, previously described in FY15 Accomplishments and FY16 Plans, are not included in this FY 2017 plan description. These efforts will be continued in MPS Increment 5, Project 675385.			
Title: MAF Automated Flight Planning Service (MAFPS) ***Description:*** Develops a centralized/net-centric global mobility flight planning capability, which will provide significant fuel savings through automated flight route, airspeed, and altitude optimization utilizing aircraft performance, air traffic management, weather, and other data. ***FY 2015 Accomplishments:*** - Developed and delivered engineering Releases 3 and 4 which enabled integration with the AMC C2 enclave at Scott AFB ***FY 2016 Plans:*** - Complete software development and formal qualification testing for Release 1 and enter formal Government developmental test - Begin planning and initial development activities for Release 2 to include a System Requirements Review and Integrated Baseline Review for completion of the second wave capabilities ***FY 2017 Plans:*** - Will continue Release 2 development Note: Activities for Release 1, previously described in FY15 Accomplishments and FY16 Plans, are not included in this FY 2017 plan description. These efforts will be continued in MPS Increment 5, Project 675385.	5.297	6.284	4.478
Accomplishments/Planned Programs Subtotals	54.558	48.445	60.788

C. Other Program Funding Summary ($ in Millions)

Line Item	FY 2015	FY 2016	FY 2017 Base	FY 2017 OCO	FY 2017 Total	FY 2018	FY 2019	FY 2020	FY 2021	Cost To Complete	Total Cost
• OPAF: BA07: Line Item # 833170: *Mission Planning Systems*	7.249	8.512	9.539	0.000	9.539	9.314	9.254	9.417	9.586	Continuing	Continuing

Remarks

D. Acquisition Strategy

MPS Modernization consists of multiple capability upgrades across multiple platforms that are developed and fielded using a variety of contracting instruments. The Air Force Life Cycle Management Center at Hanscom AFB AFLCMC/HB) competitively awarded multiple ID/IQ (Indefinite Delivery/Indefinite Quantities) contracts for software development. Currently there are five (5) contractors, one of which is Small Business set aside, who are qualified sources. Each Delivery Order (DO) is competed among the five contractors.

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Efforts to accomplish program activities such as software development, systems engineering and integration, training, and support are competitively awarded using a variety of contract types (e.g. Cost Plus Award Fee (CPAF), Fixed Price (FP), Fixed Price Incentive Fee (FPIF)).

Program Management Administration (PMA) contracts are awarded competitively and consist of various types of contracts at various locations.

Mitre, a Federally Funded Research and Development Center (FFRDC) contractor provides technical support on a no fee for service contract.

Other efforts are accomplished via Purchase Orders (PO) and Military Interdepartmental Purchase Requests (MIPR).

For the efforts listed above, the Air Force Life Cycle Management Center at Hanscom AFB (AFLCMC/HB) provides program management, contracts, legal, and financial management support.

Air Force Program Executive Officer (PEO) for Battle Management (AFPEO/HB) is the PEO and Milestone Decision Authority (MDA) for all MPS Modernization projects (with the exception of those efforts that make up MPS Increment 5 for which the Under Secretary of Defense, Acquisition, Technology, and Logistics is the MDA).

E. Performance Metrics

Please refer to the Performance Base Budget Overview Book for information on how Air Force resources are applied and how those resources are contributing to Air Force performance goals and most importantly, how they contribute to our mission.

Exhibit R-3, RDT&E Project Cost Analysis: PB 2017 Air Force		Date: February 2016
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Product Development ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2015 Cost	FY 2015 Award Date	FY 2016 Cost	FY 2016 Award Date	FY 2017 Base Cost	FY 2017 Base Award Date	FY 2017 OCO Cost	FY 2017 OCO Award Date	FY 2017 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Mission Planning Software Development (MPEC II)	C/Various	Various : Various	0.000	23.588	Nov 2014	16.192	Nov 2015	23.311	Nov 2016	0.000		23.311	Continuing	Continuing	TBD
F-16 Modernization	PO	Organic : Hill AFB, UT	0.000	0.752	Nov 2014	0.110	Nov 2015	0.000		0.000		0.000	0.000	0.862	1.412
EC-130H Modernization	PO	Organic : Robins AFB, GA	0.000	0.993	Nov 2014	1.010	Nov 2015	1.019	Nov 2016	0.000		1.019	Continuing	Continuing	TBD
HH-60G/HC-130	PO	Organic : Robins AFB, GA	0.000	2.221	Nov 2014	1.636	Nov 2015	0.323	Nov 2016	0.000		0.323	0.000	4.180	4.180
F-22 MilCloud SIL	MIPR	GSA : Washington, DC	0.000	0.062	Sep 2015	0.000		0.000		0.000		0.000	0.000	0.062	0.062
MAF AMC Transition Tools	MIPR	AMCOM : Redstone Arsenal, AL	0.000	2.082	Jan 2015	0.000		0.000		0.000		0.000	0.000	2.082	2.082
SMACC CSAR Tools	MIPR	Various : Various	0.000	0.000		0.753	Jan 2016	0.912	Jan 2017	0.000		0.912	0.000	1.665	1.665
Systems Engineering and Integration	C/CPAF	Leidos, Inc. : Reston, VA	0.000	6.576	Nov 2014	7.661	Nov 2015	5.346	Nov 2016	0.000		5.346	Continuing	Continuing	TBD
Framework	C/FPIF	Northrop Grumman : Herndon, VA	0.000	1.060	Jan 2016	2.935	Mar 2016	8.951	Jan 2017	0.000		8.951	Continuing	Continuing	TBD
Common Components	C/Various	Various : Various	0.000	4.321	Nov 2014	4.844	Nov 2015	6.795	Nov 2016	0.000		6.795	Continuing	Continuing	TBD
		Subtotal	0.000	41.655		35.141		46.657		0.000		46.657	-	-	-

Support ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2015 Cost	FY 2015 Award Date	FY 2016 Cost	FY 2016 Award Date	FY 2017 Base Cost	FY 2017 Base Award Date	FY 2017 OCO Cost	FY 2017 OCO Award Date	FY 2017 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Software Engineering	C/T&M	SEI : Pittsburgh, PA	0.000	0.080	Nov 2014	0.117	Nov 2015	0.000		0.000		0.000	Continuing	Continuing	TBD
Cost Estimating	C/T&M	Tecolote Inc : Goleta, CA	0.000	0.287	Nov 2014	0.352	Nov 2015	0.000		0.000		0.000	Continuing	Continuing	TBD
		Subtotal	0.000	0.367		0.469		0.000		0.000		0.000	-	-	-

Exhibit R-3, RDT&E Project Cost Analysis: PB 2017 Air Force		Date: February 2016
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Test and Evaluation ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2015 Cost	FY 2015 Award Date	FY 2016 Cost	FY 2016 Award Date	FY 2017 Base Cost	FY 2017 Base Award Date	FY 2017 OCO Cost	FY 2017 OCO Award Date	FY 2017 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Responsible Test Organization (RTO)	PO	46TS : Eglin AFB, FL	0.000	2.415	Dec 2014	2.860	Dec 2015	3.885	Dec 2016	0.000		3.885	0.000	9.160	TBD
Certification and Accreditation	MIPR	JITC : Fort Huachuca, AZ	0.000	0.108	Feb 2015	0.100	Feb 2016	0.111	Feb 2017	0.000		0.111	0.000	0.319	TBD
Type I Training	C/FP	Spiral Solutions & Technologies, Inc. : Bellevue, NE	0.000	1.126	Jul 2015	0.609	Jul 2016	1.171	Jul 2017	0.000		1.171	0.000	2.906	TBD
Field Representative Hardware	C/Various	Various : Various	0.000	0.194	Nov 2014	0.410	Nov 2015	0.449	Nov 2016	0.000		0.449	0.000	1.053	TBD
		Subtotal	0.000	3.843		3.979		5.616		0.000		5.616	0.000	13.438	-

Management Services ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2015 Cost	FY 2015 Award Date	FY 2016 Cost	FY 2016 Award Date	FY 2017 Base Cost	FY 2017 Base Award Date	FY 2017 OCO Cost	FY 2017 OCO Award Date	FY 2017 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Engineering and Technical Support	RO	MITRE Corp : Bedford, MA	0.000	3.419	Oct 2014	3.287	Oct 2015	0.000		0.000		0.000	Continuing	Continuing	TBD
Program Management Administration	Various	Various : Various	0.000	5.274	Nov 2014	5.569	Nov 2015	8.515	Nov 2016	0.000		8.515	Continuing	Continuing	TBD
		Subtotal	0.000	8.693		8.856		8.515		0.000		8.515	-	-	-

	Prior Years	FY 2015		FY 2016		FY 2017 Base		FY 2017 OCO		FY 2017 Total	Cost To Complete	Total Cost	Target Value of Contract
Project Cost Totals	0.000	54.558		48.445		60.788		0.000		60.788	-	-	-

Remarks

Exhibit R-4, RDT&E Schedule Profile: PB 2017 Air Force		Date: February 2016
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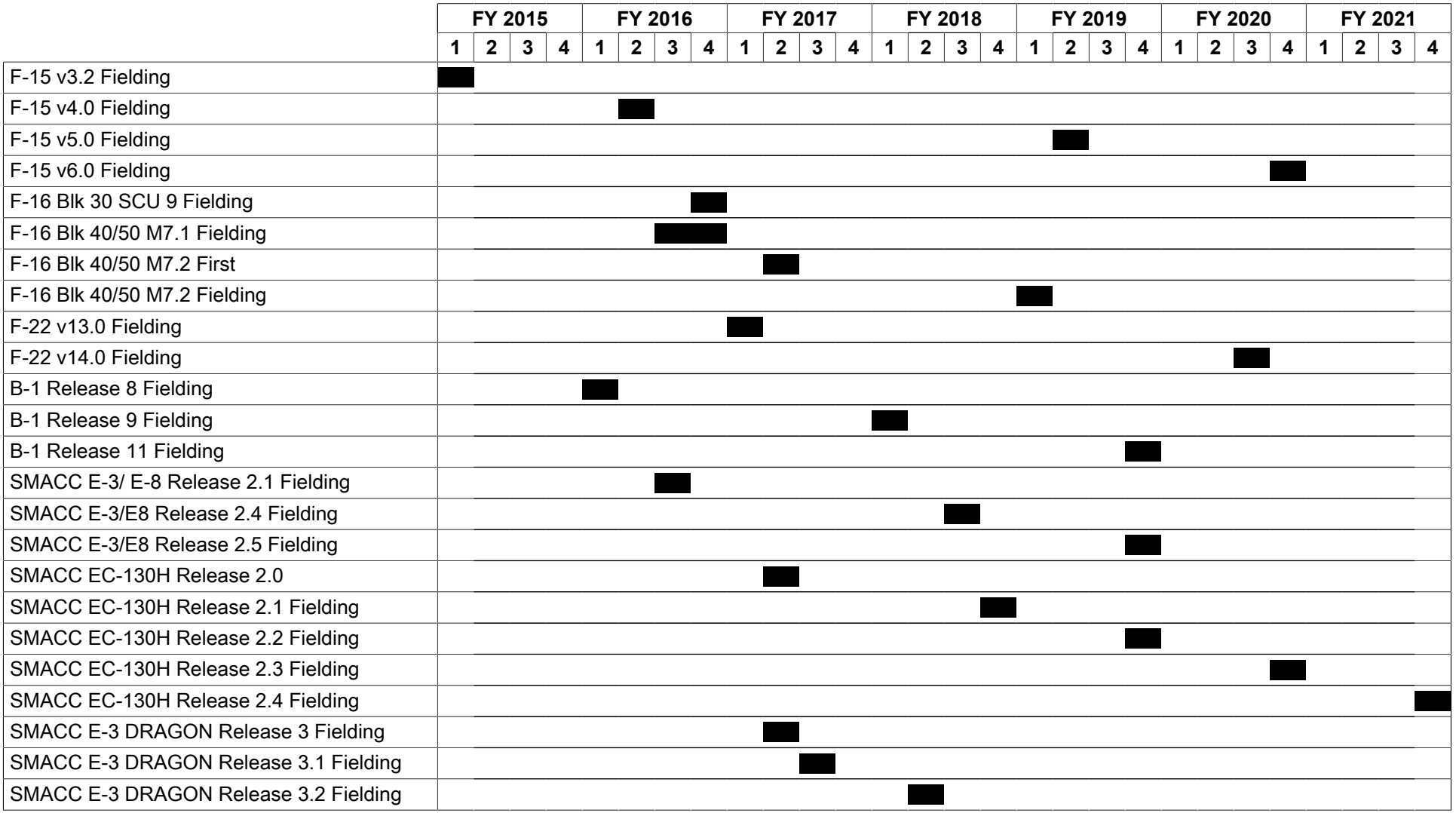

Exhibit R-4, RDT&E Schedule Profile: PB 2017 Air Force		Date: February 2016
Appropriation/Budget Activity 3600 / 7	**R-1 Program Element (Number/Name)** PE 0208006F / *Mission Planning Systems*	**Project (Number/Name)** 675380 / *Mission Planning Systems (MPS) Modernization*

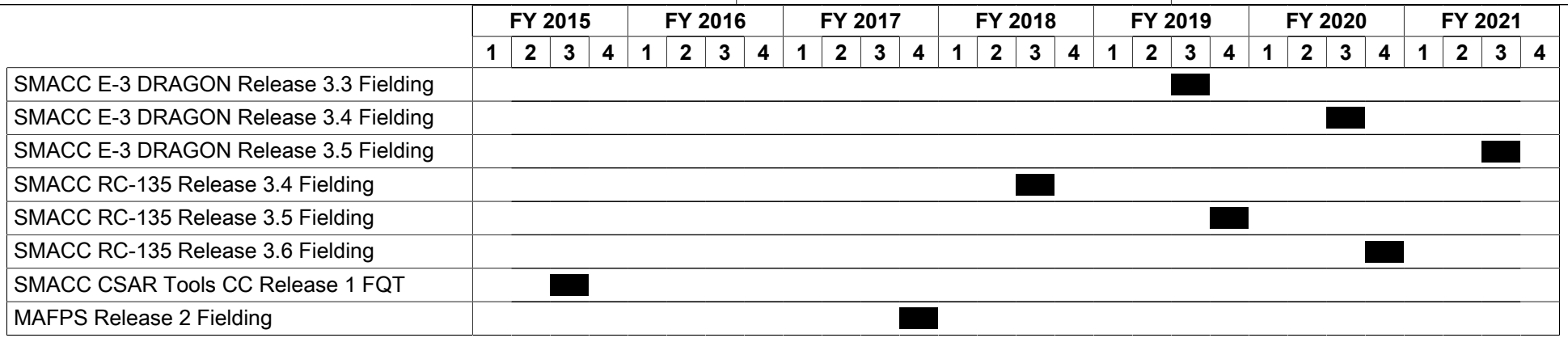

Exhibit R-4A, RDT&E Schedule Details: PB 2017 Air Force		Date: February 2016
Appropriation/Budget Activity 3600 / 7	**R-1 Program Element (Number/Name)** PE 0208006F / *Mission Planning Systems*	**Project (Number/Name)** 675380 / *Mission Planning Systems (MPS) Modernization*

Schedule Details

	Start		End	
Events	**Quarter**	**Year**	**Quarter**	**Year**
F-15 v3.2 Fielding	1	2015	1	2015
F-15 v4.0 Fielding	2	2016	2	2016
F-15 v5.0 Fielding	2	2019	2	2019
F-15 v6.0 Fielding	4	2020	4	2020
F-16 Blk 30 SCU 9 Fielding	4	2016	4	2016
F-16 Blk 40/50 M7.1 Fielding	3	2016	4	2016
F-16 Blk 40/50 M7.2 First	2	2017	2	2017
F-16 Blk 40/50 M7.2 Fielding	1	2019	1	2019
F-22 v13.0 Fielding	1	2017	1	2017
F-22 v14.0 Fielding	3	2020	3	2020
B-1 Release 8 Fielding	1	2016	1	2016
B-1 Release 9 Fielding	1	2018	1	2018
B-1 Release 11 Fielding	4	2019	4	2019
SMACC E-3/ E-8 Release 2.1 Fielding	3	2016	3	2016
SMACC E-3/E8 Release 2.4 Fielding	3	2018	3	2018
SMACC E-3/E8 Release 2.5 Fielding	4	2019	4	2019
SMACC EC-130H Release 2.0	2	2017	2	2017
SMACC EC-130H Release 2.1 Fielding	4	2018	4	2018
SMACC EC-130H Release 2.2 Fielding	4	2019	4	2019
SMACC EC-130H Release 2.3 Fielding	4	2020	4	2020
SMACC EC-130H Release 2.4 Fielding	4	2021	4	2021
SMACC E-3 DRAGON Release 3 Fielding	2	2017	2	2017

Exhibit R-4A, RDT&E Schedule Details: PB 2017 Air Force		Date: February 2016
Appropriation/Budget Activity 3600 / 7	**R-1 Program Element (Number/Name)** PE 0208006F / *Mission Planning Systems*	**Project (Number/Name)** 675380 / *Mission Planning Systems (MPS) Modernization*

	Start		End	
Events	**Quarter**	**Year**	**Quarter**	**Year**
SMACC E-3 DRAGON Release 3.1 Fielding	3	2017	3	2017
SMACC E-3 DRAGON Release 3.2 Fielding	2	2018	2	2018
SMACC E-3 DRAGON Release 3.3 Fielding	3	2019	3	2019
SMACC E-3 DRAGON Release 3.4 Fielding	3	2020	3	2020
SMACC E-3 DRAGON Release 3.5 Fielding	3	2021	3	2021
SMACC RC-135 Release 3.4 Fielding	3	2018	3	2018
SMACC RC-135 Release 3.5 Fielding	4	2019	4	2019
SMACC RC-135 Release 3.6 Fielding	4	2020	4	2020
SMACC CSAR Tools CC Release 1 FQT	3	2015	3	2015
MAFPS Release 2 Fielding	4	2017	4	2017

Exhibit R-2A, RDT&E Project Justification: PB 2017 Air Force			Date: February 2016
Appropriation/Budget Activity 3600 / 7	R-1 Program Element (Number/Name) PE 0208006F / *Mission Planning Systems*	Project (Number/Name) 675385 / *MPS Increment 5*	

COST ($ in Millions)	Prior Years	FY 2015	FY 2016	FY 2017 Base	FY 2017 OCO	FY 2017 Total	FY 2018	FY 2019	FY 2020	FY 2021	Cost To Complete	Total Cost
675385: *MPS Increment 5*	0.000	0.000	0.000	3.752	0.000	3.752	0.000	0.000	0.000	0.000	Continuing	Continuing
Quantity of RDT&E Articles	-	-	-	-	-	-	-	-	-	-		

Note

In FY 2017, the Mobility Air Forces Automated Flight Planning Service (MAFPS), Air Mobility Command (AMC) Transition, and Special Mission Air Combat Command, Combat Search and Rescue (SMACC CSAR) efforts within PE 0208006F, Mission Planning Systems, Project 675380, Mission Planning Systems (MPS) Modernization, were transferred to PE 0208006F, Mission Planning Systems, Project 675385, MPS Increment 5, in order to provide improved transparency for the overarching MPS Major Automated Information System (MAIS) program.

A. Mission Description and Budget Item Justification

MPS Increment 5 will complete the initial migration of Air Force platforms from their legacy planning systems to the new Mission Planning System (aka the Joint Mission Planning Systems (JMPS)). It will complete development of three efforts originally started as separate and individual projects within the MPS Modernization development effort. Those projects are:

1) Mobility Air Forces Automated Flight Planning Service (MAFPS);
2) Air Mobility Command (AMC) Transition; and
3) Special Mission Air Combat Command, Combat Search and Rescue (SMACC CSAR)

These projects, and their associated platforms, are now included in the overarching MPS Major Automated Information Systems (MAIS) program as MPS Increment 5 to provide improved transparency and oversight. As such, MPS Increment 5 is not a new start but a continuation of efforts previously started under the development umbrella of the MPS Modernization project.

FY17 funding will continue software development activities for the three efforts (MAFPS, AMC Transition, and SMACC CSAR) that are being transferred from the MPS Modernization project beginning in FY17. Specific capabilities include but are not limited to the following:

A. Mobility Air Forces Automated Flight Planning Service (MAFPS): The MAFPS component to MPS Increment 5 provides modern flight planning service compliant with current and emerging airspace and air traffic control constraints. Central to the program is an improved route and fuel optimizer. MAFPS replaces the legacy Advanced Computer Flight Planning (ACFP) system. Warfighter benefits include:

- Flight planning calculations for Tanker Airlift Control Center (TACC)-managed missions and AMC aircraft
- Generate, validate, and file valid ATS flight plans and meet all CNS/ATM and RVSM standards
- Produce and graphically display optimum mission routes, fuel calculations, and aerial refueling activity
- Calculate optimized fuel loads to include Cost Indexing
- Graphical user interface and capability to dynamically re-compute flight plans

Exhibit R-2A, RDT&E Project Justification: PB 2017 Air Force		Date: February 2016
Appropriation/Budget Activity 3600 / 7	**R-1 Program Element (Number/Name)** PE 0208006F / *Mission Planning Systems*	**Project (Number/Name)** 675385 / *MPS Increment 5*

B. AMC Transition: The AMC Transition to MPS component will migrate selected Airlift (C-5), Tanker (KC-135, KC-10) and Air Drop (C-17, C-130) platforms from their legacy PFPS mission planning systems which is sun setting in August 2018. Additional warfighter benefits include:

- Color moving map (Digimap) Common Component
- Enhanced Air Refueling Common Component
- Aircraft FPM/TOLD/VIP Development
- CNS/ATM certified navigation avionics images

C. Special Missions Air Combat Command (SMACC) Combat Search and Rescue (CSAR): This development effort will migrate the CSAR community (HH-60, HC/MC-130 aircraft) from PFPS to the MPS environment. Warfighter benefits include:

- Ability to support a spectrum of missions ranging from simple day-to-day training and proficiency flying to peacetime operational/exercise sorties
- Rapid mission planning
- Mission data transfer to the aircraft via DTD
- In flight situational awareness

B. Accomplishments/Planned Programs ($ in Millions)	FY 2015	FY 2016	FY 2017
Title: MPS Increment 5	0.000	0.000	3.752
Description: MPS Increment 5 continues and completes the development of: 1) Mobility Air Forces Automated Planning Service (MAFPS) system; 2) AMC Transition; and 3) Special Mission Air Combat Command, Combat Search and Rescue (SMACC CSAR). All three efforts were previously initiated as part of the MPS Modernization effort (Project 675380). All will be transferred into MPS Increment 5 (beginning in FY17) to provide improved transparency and oversight of MPS MAIS programs.			
FY 2015 Accomplishments: Effort previously reported in MPS Modernization, Project 675380			
FY 2016 Plans: Effort previously reported in MPS Modernization, Project 675380			
FY 2017 Plans: MAFPS: - Will complete the development of MAFPS Release 1 and conduct developmental and operational testing with the AMC enclaves AMC Transition: - Will complete the integration of the Global Mobility 1.2 MPE, (FW, UPC, and CC)and complete operational testing and fielding for the C-130, C-5, KC-10 and KC-135			

Exhibit R-2A, RDT&E Project Justification: PB 2017 Air Force		Date: February 2016
Appropriation/Budget Activity 3600 / 7	**R-1 Program Element (Number/Name)** PE 0208006F / *Mission Planning Systems*	**Project (Number/Name)** 675385 / *MPS Increment 5*

B. Accomplishments/Planned Programs ($ in Millions)	FY 2015	FY 2016	FY 2017
SMACC CSAR: - Will complete the development and integration of the CSAR tools and of the MPE and begin developmental testing for the HH-60 and HC/MC-130.			
Accomplishments/Planned Programs Subtotals	0.000	0.000	3.752

C. Other Program Funding Summary ($ in Millions)

Line Item	FY 2015	FY 2016	FY 2017 Base	FY 2017 OCO	FY 2017 Total	FY 2018	FY 2019	FY 2020	FY 2021	Cost To Complete	Total Cost
• N/A: *N/A*	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	-	-

Remarks

No other program funding is specifically identified for MPS Increment 5. WSC 833170, Mission Planning Systems provides financial resources to efficiently and economically procure Commercial Off-The-Shelf (COTS) hardware for all MPS operational users (no matter which MPS software increment they are using to complete the mission planning function). Funding for the MPS Hardware Program is identified in the Other Program Funding section of Project 675380, MPS Modernization and is not being duplicated here because it would be redundant.

D. Acquisition Strategy

MPS Increment 5 consists of multiple capability upgrades across multiple platforms that are developed and fielded using a variety of contracting instruments. It leverages strategies and efforts originally established under MPS Increment IV and MPS Modernization. The Air Force Life Cycle Management Center at Hanscom AFB (AFLCMC/HB) competitively awarded multiple ID/IQ (Indefinite Delivery/Indefinite Quantities) contracts for software development. Currently there are 5 qualified contractors, one of which is Small Business set aside, and each Delivery Order (DO) is competed among the 5 contractors.

Efforts to accomplish program activities such as software development, systems engineering and integration, training, and support are competitively awarded using a variety of contract types (e.g. Cost Plus Award Fee (CPAF), Fixed Price (FP), Fixed Price Incentive Fee (FPIF)).

Program Management Administration (PMA) contracts are awarded competitively and consist of various types of contracts at various locations.

Mitre, a Federally Funded Research and Development Center (FFRDC) contractor provides technical support on a no fee for service contract.

Other efforts are accomplished via Purchase Orders (PO) and Military Interdepartmental Purchase Requests (MIPR).

For the efforts listed above, the Air Force Life Cycle Management Center at Hanscom AFB (AFLCMC/HB) provides program management, contracting, legal, and financial management support.

Exhibit R-2A, RDT&E Project Justification: PB 2017 Air Force		Date: February 2016
Appropriation/Budget Activity 3600 / 7	**R-1 Program Element (Number/Name)** PE 0208006F / *Mission Planning Systems*	**Project (Number/Name)** 675385 / *MPS Increment 5*

E. Performance Metrics

Please refer to the Performance Base Budget Overview Book for information on how Air Force resources are applied and how those resources are contributing to Air Force performance goals and most importantly, how they contribute to our mission.

Exhibit R-3, RDT&E Project Cost Analysis: PB 2017 Air Force			Date: February 2016
Appropriation/Budget Activity 3600 / 7	R-1 Program Element (Number/Name) PE 0208006F / *Mission Planning Systems*	Project (Number/Name) 675385 / *MPS Increment 5*	

Product Development ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2015 Cost	FY 2015 Award Date	FY 2016 Cost	FY 2016 Award Date	FY 2017 Base Cost	FY 2017 Base Award Date	FY 2017 OCO Cost	FY 2017 OCO Award Date	FY 2017 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Mission Planning Software Development (MPEC II)	C/CPIF	DCS Corporation : Alexandria, VA	0.000	0.000		0.000		0.010	Nov 2016	0.000		0.010	Continuing	Continuing	TBD
HH-60/HC-130J/N/P Release 1	PO	Organic : Robins AFB, GA	0.000	0.000		0.000		1.043	Nov 2016	0.000		1.043	0.068	1.111	-
SM-ACC CSAR Tools	MIPR	Various : Various	0.000	0.000		0.000		0.432	Dec 2016	0.000		0.432	0.000	0.432	-
Systems Engineering and Integration	C/CPAF	Leidos, Inc. : Reston, VA	0.000	0.000		0.000		0.932	Nov 2016	0.000		0.932	0.000	0.932	-
		Subtotal	0.000	0.000		0.000		2.417		0.000		2.417	-	-	-

Support ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2015 Cost	FY 2015 Award Date	FY 2016 Cost	FY 2016 Award Date	FY 2017 Base Cost	FY 2017 Base Award Date	FY 2017 OCO Cost	FY 2017 OCO Award Date	FY 2017 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Cost Estimating	C/T&M	Tecolote Inc. : Goleta, CA	0.000	0.000		0.000		0.028	Nov 2016	0.000		0.028	Continuing	Continuing	-
		Subtotal	0.000	0.000		0.000		0.028		0.000		0.028	-	-	-

Test and Evaluation ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2015 Cost	FY 2015 Award Date	FY 2016 Cost	FY 2016 Award Date	FY 2017 Base Cost	FY 2017 Base Award Date	FY 2017 OCO Cost	FY 2017 OCO Award Date	FY 2017 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Responsible Test Organization (RTO)	PO	46TS : Eglin AFB, FL	0.000	0.000		0.000		0.301	Dec 2016	0.000		0.301	0.000	0.301	-
Type I Training	C/FP	Spiral solutions & Technologies, Inc. : Bellevue, NE	0.000	0.000		0.000		0.300	Jan 2017	0.000		0.300	0.000	0.300	-
		Subtotal	0.000	0.000		0.000		0.601		0.000		0.601	0.000	0.601	-

Exhibit R-3, RDT&E Project Cost Analysis: PB 2017 Air Force			Date: February 2016
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Management Services ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2015 Cost	FY 2015 Award Date	FY 2016 Cost	FY 2016 Award Date	FY 2017 Base Cost	FY 2017 Base Award Date	FY 2017 OCO Cost	FY 2017 OCO Award Date	FY 2017 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Engineering and Technical Support	RO	MITRE Corp. : Bedford, MA	0.000	0.000		0.000		0.417	Nov 2016	0.000		0.417	0.000	0.417	-
Program Management Administration	C/CPFF	Odyssey Systems Consulting Group, LTD. : Wakefield, MA	0.000	0.000		0.000		0.289	Nov 2016	0.000		0.289	0.000	0.289	-
		Subtotal	0.000	0.000		0.000		0.706		0.000		0.706	0.000	0.706	-

	Prior Years	FY 2015		FY 2016		FY 2017 Base		FY 2017 OCO		FY 2017 Total	Cost To Complete	Total Cost	Target Value of Contract
Project Cost Totals	0.000	0.000		0.000		3.752		0.000		3.752	-	-	-

Remarks

Exhibit R-4, RDT&E Schedule Profile: PB 2017 Air Force		Date: February 2016
Appropriation/Budget Activity 3600 / 7	**R-1 Program Element (Number/Name)** PE 0208006F / *Mission Planning Systems*	**Project (Number/Name)** 675385 / *MPS Increment 5*

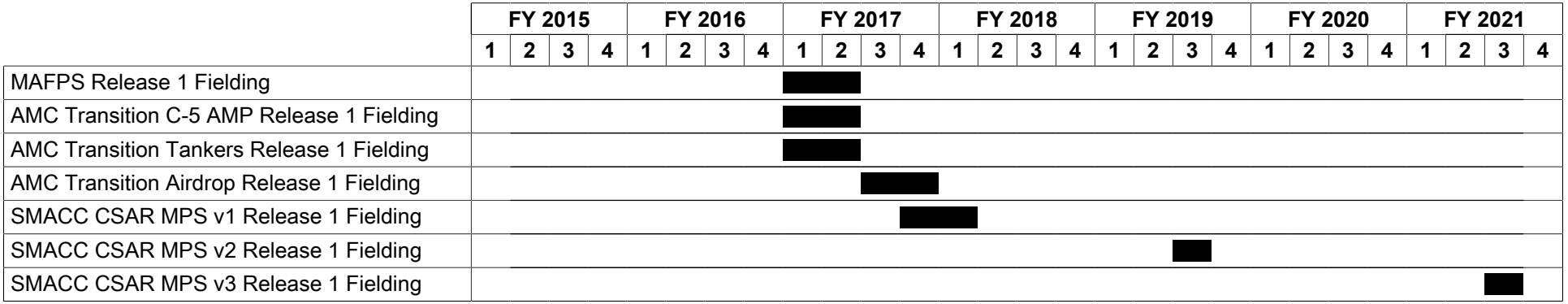

Exhibit R-4A, RDT&E Schedule Details: PB 2017 Air Force		Date: February 2016
Appropriation/Budget Activity 3600 / 7	**R-1 Program Element (Number/Name)** PE 0208006F / *Mission Planning Systems*	**Project (Number/Name)** 675385 / *MPS Increment 5*

Schedule Details

	Start		End	
Events	**Quarter**	**Year**	**Quarter**	**Year**
MAFPS Release 1 Fielding	1	2017	2	2017
AMC Transition C-5 AMP Release 1 Fielding	1	2017	2	2017
AMC Transition Tankers Release 1 Fielding	1	2017	2	2017
AMC Transition Airdrop Release 1 Fielding	3	2017	4	2017
SMACC CSAR MPS v1 Release 1 Fielding	4	2017	1	2018
SMACC CSAR MPS v2 Release 1 Fielding	3	2019	3	2019
SMACC CSAR MPS v3 Release 1 Fielding	3	2021	3	2021

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