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Exhibit R-2, RDT&E Budget Item Justification: FY 2018 Air Force										Date: May 2017		
Appropriation/Budget Activity 3600: Research, Development, Test & Evaluation, Air Force I BA 7: Operational Systems Development					R-1 Program Element (Number/Name) PE 0208006F I Mission Planning Systems							
COST (\$ in Millions)	Prior Years	FY 2016	FY 2017	FY 2018 Base	FY 2018 OCO	FY 2018 Total	FY 2019	FY 2020	FY 2021	FY 2022	Cost To Complete	Total Cost
Total Program Element	338.582	54.176	71.785	85.531	0.000	85.531	75.318	87.028	88.540	90.352	Continuing	Continuing
675302: Precision Aerial Delivery Systems (PADS)	30.048	7.390	7.245	8.397	0.000	8.397	8.912	7.074	3.113	5.212	Continuing	Continuing
675380: Mission Planning Systems (MPS) Modernization	308.534	46.786	60.788	76.316	0.000	76.316	66.406	79.954	85.427	85.140	Continuing	Continuing
675385: MPS Increment 5	0.000	0.000	3.752	0.818	0.000	0.818	0.000	0.000	0.000	0.000	0.000	4.570
Program MDAP/MAIS Code: 509												
Note MPS Increment 5 Prior Years funding of \$46.121M and FY16 funding of \$13.762 was executed in BPAC 675380												
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 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												

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Automated Information Systems (MAIS) program as MPS Increment 5 to improve transparency and oversight. As such, MPS Increment 5 is a continuation of efforts previously started under the development umbrella of the MPS Modernization project.						
FY18 funding will continue the MPS software development program. It will develop pre-, post-, and in-flight mission planning capabilities for Air Force aircraft Global Positioning System (GPS) 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), Network Enabled Weapons (NEW)etc.) Development of NEW modules support the configuration of this class of weapons, thereby; enabling warfighters to enter and execute missions using data links used by US and coalition aircraft.						
FY18 funding will also continue the development of the Mobility Air Force Automated Flight Planning Service (MAFPS) to realize fuel savings and other efficiencies.						
Joint Precision Airdrop System- Mission Planning (JPADS-MP) will be utilized to continue development of elements of Mission Planning Systems in conjunction with the Army. This program 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 JPADS product 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.						
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.						
B. Program Change Summary (\$ in Millions)		FY 2016	FY 2017	FY 2018 Base	FY 2018 OCO	FY 2018 Total
Previous President's Budget		55.835	71.785	76.183	0.000	76.183
Current President's Budget		54.176	71.785	85.531	0.000	85.531
Total Adjustments		-1.659	0.000	9.348	0.000	9.348
• 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		-1.659	0.000			
• Other Adjustments		0.000	0.000	9.348	0.000	9.348

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<u>Change Summary Explanation</u> Increase of \$9.348M to accelerate delivery of Mobility Air Force Automated Flight Planning Service (MAFPS) Release 2.0		

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Exhibit R-2A, RDT&E Project Justification: FY 2018 Air Force										Date: May 2017		
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 2016	FY 2017	FY 2018 Base	FY 2018 OCO	FY 2018 Total	FY 2019	FY 2020	FY 2021	FY 2022	Cost To Complete	Total Cost
675302: Precision Aerial Delivery Systems (PADS)	30.048	7.390	7.245	8.397	0.000	8.397	8.912	7.074	3.113	5.212	Continuing	Continuing
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.

FY18 funding continues CAT v6.x and 7.x 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 Launch Acceptance Regions (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.

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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 2016	FY 2017	FY 2018
Title: JPADS-MP Phase I		7.390	7.245	8.397
Description: Continues development of a JPADS capability for precise, high altitude delivery of material to forward ground forces.				
FY 2016 Accomplishments: - Delivered (Consolidated Air Drop Tool) CAT v3.2 and associated quick turn patches on Portable Flight Planning System (PFPS) - Completed development and began testing of CAT v4.1.2 which migrates CAT v3.2 to a JMPS Framework -Completed development and initial testing of CAT v4.2 on a JMPS Framework, which expands precision airdrop capabilities for accurate calculation of established operational requirements. -Began backwards compatibility of CAT v4.2 and PFPS - CAT v4.2 capabilities include, but are not limited to: Support for advanced failure to footprints for guided delivery systems, assessment of airdrop damage estimates based on in-flight constraints identified by the aircrew during improved container 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 - Began CAT v5.0 (High Altitude Low Opening) HALO, Automation Enhancements, Network Automation, Humanitarian Airdrop, Calculation Optimizations and Guided Airdrop Damage Estimation (ADE)				
FY 2017 Plans: - Complete work to allow backward compatibility of CAT with PFPS - Complete operational testing of CAT v4.2 on PFPS for fielding in FY17 - Complete development of CAT v5.0 and begin testing - Award contracts and initiate development of CAT v6.x to continue evolution of CAT S/W into an automated suite of airdrop mission tools				
FY 2018 Plans: - Will complete testing and field CAT v5.0 - Will continue development of CAT v6.x which will include but is not limited to: Failure Footprint and Impact Point optimization, Software User Notifications, JPADS Mission Reconstruction, the addition of new canopy types for the Automated Guidance Unit (AGU). Percent Success Zone, and Date Interface development/optimization				

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Appropriation/Budget Activity 3600 / 7				R-1 Program Element (Number/Name) PE 0208006F / <i>Mission Planning Systems</i>				Project (Number/Name) 675302 / <i>Precision Aerial Delivery Systems (PADS)</i>				
B. Accomplishments/Planned Programs (\$ in Millions)										FY 2016	FY 2017	FY 2018
- Will begin development of CAT v7.x, which includes but is not limited to: Visual Navigation and GPS Coverage, Software User Notifications, HUD/SCNS Display/Workflow, Wind Transfer to the AGU, Dry Pass, LT-ADE Integration, Ensemble Weather and Kalman Filter implementation.												
Accomplishments/Planned Programs Subtotals										7.390	7.245	8.397
C. Other Program Funding Summary (\$ in Millions)												
Line Item	FY 2016	FY 2017	FY 2018 Base	FY 2018 OCO	FY 2018 Total	FY 2019	FY 2020	FY 2021	FY 2022	Cost To Complete	Total Cost	
• OPAF: BA03: Line Item #	5.944	6.329	6.083	0.000	6.083	6.407	6.520	6.640	6.760	Continuing	Continuing	
833170: <i>Mission Planning Systems</i>												
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.												
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.												

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Exhibit R-3, RDT&E Project Cost Analysis: FY 2018 Air Force												Date: May 2017			
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)				FY 2016		FY 2017		FY 2018 Base		FY 2018 OCO		FY 2018 Total			
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Cost To Complete	Total Cost	Target Value of Contract
Software Development	MIPR	Various : Various	17.117	5.742	Nov 2015	5.725	Nov 2016	6.651	Nov 2017	0.000		6.651	Continuing	Continuing	-
Systems Engineering and Integration	C/CPAF	Leidos, Inc. : Reston, VA	4.839	1.221	Nov 2015	1.350	Nov 2016	1.377	Nov 2017	0.000		1.377	Continuing	Continuing	-
Subtotal			21.956	6.963		7.075		8.028		0.000		8.028	-	-	-
Support (\$ in Millions)				FY 2016		FY 2017		FY 2018 Base		FY 2018 OCO		FY 2018 Total			
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Cost To Complete	Total Cost	Target Value of Contract
Cost Estimating	C/T&M	Tecolote Inc : Goleta, CA	0.082	0.015	Nov 2015	0.039	Nov 2016	0.000		0.000		0.000	Continuing	Continuing	-
Subtotal			0.082	0.015		0.039		0.000		0.000		0.000	-	-	-
Test and Evaluation (\$ in Millions)				FY 2016		FY 2017		FY 2018 Base		FY 2018 OCO		FY 2018 Total			
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Cost To Complete	Total Cost	Target Value of Contract
Type I Training	C/FP	Spiral Solutions & Technologies : Bellevue, NE	2.096	0.076	Nov 2015	0.000		0.000		0.000		0.000	Continuing	Continuing	-
Subtotal			2.096	0.076		0.000		0.000		0.000		0.000	-	-	-
Management Services (\$ in Millions)				FY 2016		FY 2017		FY 2018 Base		FY 2018 OCO		FY 2018 Total			
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Cost To Complete	Total Cost	Target Value of Contract
Program Management Administration	Various	Various : Various	5.914	0.336	Nov 2015	0.131	Nov 2016	0.369	Nov 2017	0.000		0.369	Continuing	Continuing	-
Subtotal			5.914	0.336		0.131		0.369		0.000		0.369	-	-	-

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Exhibit R-3, RDT&E Project Cost Analysis: FY 2018 Air Force										Date: May 2017					
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 2016		FY 2017		FY 2018 Base		FY 2018 OCO		FY 2018 Total	Cost To Complete	Total Cost	Target Value of Contract
Project Cost Totals			30.048	7.390		7.245		8.397		0.000		8.397	-	-	-

Remarks

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Exhibit R-4, RDT&E Schedule Profile: FY 2018 Air Force			Date: May 2017		
Appropriation/Budget Activity 3600 / 7		R-1 Program Element (Number/Name) PE 0208006F / <i>Mission Planning Systems</i>			Project (Number/Name) 675302 / <i>Precision Aerial Delivery Systems (PADS)</i>

	FY 2016				FY 2017				FY 2018				FY 2019				FY 2020				FY 2021				FY 2022			
	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4
Delivered (Consolidated Air Drop Tool) CAT v3.2																												
Development and Testing of CAT v4.1																												
Development and Testing of CAT v4.2																												
Development of CAT v5.0																												
JPADS-MP CAT v4.1 Fielding (C-17)																												
JPADS-MP CAT v4.2 Fielding																												
JPADS-MP CAT v5.0 Fielding																												
JPADS-MP CAT v6.x Fielding																												
JPADS-MP CAT v7.x Fielding																												
JPADS - MP CAT v8.x Fielding																												

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Exhibit R-4A, RDT&E Schedule Details: FY 2018 Air Force			Date: May 2017
Appropriation/Budget Activity 3600 / 7	R-1 Program Element (Number/Name) PE 0208006F / <i>Mission Planning Systems</i>	Project (Number/Name) 675302 / <i>Precision Aerial Delivery Systems (PADS)</i>	

Schedule Details

Events	Start		End	
	Quarter	Year	Quarter	Year
Delivered (Consolidated Air Drop Tool) CAT v3.2	1	2016	2	2016
Development and Testing of CAT v4.1	2	2016	1	2017
Develpment and Testing of CAT v4.2	3	2016	3	2017
Development of CAT v5.0	4	2016	1	2018
JPADS-MP CAT v4.1 Fielding (C-17)	4	2017	1	2018
JPADS-MP CAT v4.2 Fielding	4	2017	1	2018
JPADS-MP CAT v5.0 Fielding	4	2018	1	2019
JPADS-MP CAT v6.xFielding	3	2019	4	2019
JPADS-MP CAT v7.x Fielding	3	2020	4	2020
JPADS - MP CAT v8.x Fielding	3	2021	4	2021

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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 2016	FY 2017	FY 2018 Base	FY 2018 OCO	FY 2018 Total	FY 2019	FY 2020	FY 2021	FY 2022	Cost To Complete	Total Cost
675380: Mission Planning Systems (MPS) Modernization	308.534	46.786	60.788	76.316	0.000	76.316	66.406	79.954	85.427	85.140	Continuing	Continuing
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 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:

1) CAF MPS Modernization: These development efforts modernize CAF Mission Planning Environments (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, 17a and 18), F-15 (Suites 7, 8, 9 and 10), F-16 Block 30 (System Capability Upgrade [SCU] 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:

a. F-15 Modernization Phase II & III: This modernization program consists of multiple software development efforts driven by OFP updates for F-15 Suites 7, 8, and 9.X. 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 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, Eagle Passive Active Warning Survivability System (EPAWSS), a new Advanced Dual Core Process II (ADCP-II) computer as well as Digital Transfer Device/Modules (DTD/DTM) modernization.

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Exhibit R-2A, RDT&E Project Justification: FY 2018 Air Force		Date: May 2017
Appropriation/Budget Activity 3600 / 7	R-1 Program Element (Number/Name) PE 0208006F / <i>Mission Planning Systems</i>	Project (Number/Name) 675380 / <i>Mission Planning Systems (MPS) Modernization</i>
<p>b. F-16 Block 30 Modernization Phase I: The F-16 Block 30 Mod Phase 1 completed fielding and transitioned to full sustainment the 4QFY16.</p> <p>c. 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 of 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. 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. M7.2 will also migrate the F-16 Block 40/50 MPE to the Windows 10 operating environment. A follow on effort to F-16 Mod Phase III will be planned in FY19.</p> <p>d. F-22 Modernization Phase I: The F-22 Modernization program includes OFP-driven software updates v13 and v14. 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.</p> <p>e. 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 10 operating system and convert the B-1 Unit Planning Component (UPC) Visual Basic (VB) code to C# .NET.</p> <p>2) 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.</p> <p>3) 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 MAF Modernization 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.</p>		

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Exhibit R-2A, RDT&E Project Justification: FY 2018 Air Force		Date: May 2017		
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		
Mobility Air Forces Automated Flight Planning Service (MAFPS) Phase Two began in FY17. This effort modernizes the MAFPS products developed in Increment 5. This effort completes the 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.				
Test, Training, and Certification: Continues all MPS-related integration, test, and certification activities for all CAF and MAF platforms.				
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.				
FY18 funding continues 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).				
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.				
B. Accomplishments/Planned Programs (\$ in Millions)		FY 2016	FY 2017	FY 2018
Title: F-15 Modernization Phase II&III		9.730	13.387	13.271
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 2016 Accomplishments:				
- Completed Developmental Testing (DT) of v4.0 in Q3				
- Completed Operational Testing (OT) and fielding of MPE v4.0 in Q4				
- Initiated v6.0 in Q4, enabling mission planning support for OFP Suite 9.1 and EPAWSS				
- Released two v4.0 mid-DT 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				
- Continued MPE v5.0 development that includes Digital Transfer Device/Modules (DTD/DTM) modernization, MIDS-JTRS, and Radar library updates				
FY 2017 Plans:				
- Complete Developmental Testing (DT) and Operation Testing (OT) of MPE v4.1. MPE v4.1 will support SDB-II OT in FY18, deficiencies found in v4.0 and Suite 8E and Suite 7 requirements.				
- Continue development of MPE v5.0 which includes:				

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Exhibit R-2A, RDT&E Project Justification: FY 2018 Air Force			Date: May 2017		
Appropriation/Budget Activity 3600 / 7		R-1 Program Element (Number/Name) PE 0208006F / <i>Mission Planning Systems</i>		Project (Number/Name) 675380 / <i>Mission Planning Systems (MPS) Modernization</i>	
B. Accomplishments/Planned Programs (\$ in Millions)			FY 2016	FY 2017	FY 2018
<ul style="list-style-type: none"> - Digital Transfer Device/Modules (DTD/DTM) modernization - Radar library updates - MIDS-JTRS upgrade - Transition to WIN10 <p>- Continue to work requirements and begin development for F-15 v6.0 with focus on systems interfacing with aircraft program and EPAWSS</p> <p>FY 2018 Plans:</p> <ul style="list-style-type: none"> - Will complete FQT and DT on MPE v5.0 - Will continue requirements definition and development of v6.0 					
<p>Title: F-16 Block 30 Modernization Phase I</p> <p>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.</p> <p>FY 2016 Accomplishments:</p> <ul style="list-style-type: none"> - Completed SCU9 development, full qualification testing, Development Testing, Operational Testing & fielding <p>FY 2017 Plans:</p> <p>No RDT&E funding requested in FY17.</p> <p>FY 2018 Plans:</p> <p>No RDT&E funding requested in FY18</p>			0.000	0.000	0.000
<p>Title: F-16 Block 40/50 Modernization Phases I and II</p> <p>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.</p> <p>FY 2016 Accomplishments:</p> <ul style="list-style-type: none"> - Completed development testing and started operational testing of M7.1+ - Completed design and began coding MPS M7.2 for first Operational Flight Plan (OFP) ground testing - Capabilities for M7.2+ included Automatic Dependent Surveillance-Broadcast (ADS-B) Out, JASSM-ER, UAI Compliance for SDB II, and MIDS upgrades <p>FY 2017 Plans:</p> <ul style="list-style-type: none"> - Field M7.1+ 			0.372	0.486	3.263

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Exhibit R-2A, RDT&E Project Justification: FY 2018 Air Force			Date: May 2017		
Appropriation/Budget Activity 3600 / 7		R-1 Program Element (Number/Name) PE 0208006F / <i>Mission Planning Systems</i>		Project (Number/Name) 675380 / <i>Mission Planning Systems (MPS) Modernization</i>	
B. Accomplishments/Planned Programs (\$ in Millions)			FY 2016	FY 2017	FY 2018
- Complete coding and two software development builds for MPS M7.2 for first and second OFP ground and flight test (FTR1 and FTR2) FY 2018 Plans: - Complete development of M7.2 and begin developmental testing in preparation for operational testing and fielding in FY19					
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 2016 Accomplishments: - Completed MPE v13.0 FQT - Completed Developmental Test for v13.0 - Released mid-DT v13.0 to resolve GEO-2 immaturity issues - Capabilities for v13.0 included, but were 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 - Began MPE v14.0 requirements definition interfacing with the aircraft program - Awarded delivery order for v14.0 - Awarded v13.1 Update 6 - development for Crypto Modernization, Threat Rings and EW Tools FY 2017 Plans: - Enter and complete Operational Testing (OT) for v13.0 - Field MPE v13.0 - Continue development of Update 6 - Complete FQT or v13.1 Update 6 - Continue development for MPE v14.0 - MPE v14.0 will be built from the v13.1 baseline and integrated with requirements established through OFP Inc 3.2M FY 2018 Plans: - Will continue development of v14.0 - Will continue development of F-22 Helmet Display Mounted Cueing System (HDMCS) - Will complete Developmental Testing (DT) and Operational Testing (OT) for v13.1 update 6 Field v13.1 Update 6			4.901	10.822	9.832
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.			5.779	11.256	13.026

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Exhibit R-2A, RDT&E Project Justification: FY 2018 Air Force			Date: May 2017		
Appropriation/Budget Activity 3600 / 7		R-1 Program Element (Number/Name) PE 0208006F / <i>Mission Planning Systems</i>		Project (Number/Name) 675380 / <i>Mission Planning Systems (MPS) Modernization</i>	
B. Accomplishments/Planned Programs (\$ in Millions)			FY 2016	FY 2017	FY 2018
<i>FY 2016 Accomplishments:</i> <ul style="list-style-type: none"> - Fielded Release 8.0 - Incorporated Draw File into Release 8.0 - Continued development of Release 9.0 that will update the migration to Framework v. 1.5.3xx, SDC 5.x and operation in WoW64 environment - Accomplished Release 9.0 Initial Design Reviews (IDR) 1 & 2 - Released Release 9.0 Beta 1 & 2 - Completed 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 (LRASM), and replacement of Redundant Power Supply (RPS) Super microcomputer for SB-17 - Continued development of LRASM - Accomplished System Integration Lab (SIL) test - Released Release 9.0 Beta 2 and finalized detailed design - Released Release 9.0 Beta 3 and finalized MPE integration prior to FQT for SB-17 - Prepared Delivery Order (DO) for Release 11.0 - Accomplished Release 11.0 Configuration Control Board (CCB) - Released Release 11.0 Request for Proposal (RFP) <i>FY 2017 Plans:</i> <ul style="list-style-type: none"> - Incorporate FIDL Editor and Draw File into Release 9.0 - Award new Delivery Order (DO) for Release 11.0 - Continue development of Release 9.0 - Continue development of LRASM - Accomplish Technical Requirements Review (TRR) - Perform Final Quality Test (FQT) - Complete a 63-119 review - Formalize Developmental Test (DT) and scenario testing <i>FY 2018 Plans:</i> <ul style="list-style-type: none"> - Will continue development of LRASM - Will field Release 9 - Will start Development Release 11 					
Title: MAF Modernization			9.468	8.388	18.326

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Exhibit R-2A, RDT&E Project Justification: FY 2018 Air Force			Date: May 2017		
Appropriation/Budget Activity 3600 / 7		R-1 Program Element (Number/Name) PE 0208006F / <i>Mission Planning Systems</i>		Project (Number/Name) 675380 / <i>Mission Planning Systems (MPS) Modernization</i>	
B. Accomplishments/Planned Programs (\$ in Millions)			FY 2016	FY 2017	FY 2018
<p>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.</p> <p>FY 2016 Accomplishments:</p> <ul style="list-style-type: none"> - Completed GM 1.3.100 (C-17) Formal Qualification Testing (FQT) and began formal Government developmental testing - Continued development for GM release 1.3.300 (C-5,KC-10,KC-135, C-130) and prepared for Formal Qualification Testing (FQT) and entry into for Government developmental testing - Began development for GM release 1.4 (KC-46 aircraft) <p>FY 2017 Plans:</p> <ul style="list-style-type: none"> - Complete GM 1.4 (KC-46) development, formal qualification testing, and initiate formal Government developmental testing (not including the Increment 5 products which are discussed in the MPS Inc 5 section of this submittal. <p>FY 2018 Plans:</p> <ul style="list-style-type: none"> - Will complete both operational testing and fielding for the GM 1.4 (KC-46) MPE - Will complete the operational testing of the AMC MPE (C-17) MPE (FW, UPC, and CC) and complete testing for the AMC GM (C-130, C-5, KC-10 and KC-135) MPE - Will begin development of GM Sustainment ECP 					
<p>Title: Special Mission ACC (SMACC)</p> <p>Description: Continues the modernization of previously fielded mission planning software environments for the E-3, E-8, E-4, EC-130, and RC-135.</p> <p>FY 2016 Accomplishments:</p> <ul style="list-style-type: none"> - Continued development of EC-130 Version 2.0 MPE and RC-135 Version 3.1.1 - Continued development of the MPE for HH-60 and HC/MC-130s within the SMACC CSAR program <p>FY 2017 Plans:</p> <ul style="list-style-type: none"> - Continue development of E-3/E-8 v2.1.1. Complete development and testing of EC-130H v2.0 - Complete development of the E-3 DRAGON, enter formal government developmental test and field - Continue development and enter formal government testing of the SMACC CSAR MPE - Complete and integrate Survivor Broadcast Overlay Tool (SBOT) and Search pattern Tool (SPT) into the SMACC CSAR MPE <p>FY 2018 Plans:</p>			10.976	14.270	15.743

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Exhibit R-2A, RDT&E Project Justification: FY 2018 Air Force										Date: May 2017		
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				
B. Accomplishments/Planned Programs (\$ in Millions)										FY 2016	FY 2017	FY 2018
- Will develop follow-on MPE's for E-3 DRAGON v3.2 and EC-130 v2.1 - Continue development, testing, and CSAR fielding												
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 2016 Accomplishments: - Completed FQT parts 1 & 2 - Installed MAFPS software into AMC's Command and Control Support Environment (C2SE) - Awarded ECP 4 to address new requirements to address associated system obsolescence and user feedback must fixes - MAFPS Release 1 (FY17 program) will be reported as part of Increment 5. FY 2017 Plans: Note: Activities for Release 1, previously described in FY16 Accomplishments and FY18 Plans, are not included in this FY 2017 plan description. These efforts will be continued in MPS Increment 5, Project 675385. - Begin initial development activities for Release 2 to include a System Requirements Review and Integrated Baseline Review for completion of the second spiral capabilities. FY 2018 Plans: - Will continue IOT&E and Field Release 1 - Will continue Release 2 development										5.560	2.179	2.855
Accomplishments/Planned Programs Subtotals										46.786	60.788	76.316
C. Other Program Funding Summary (\$ in Millions)												
Line Item	FY 2016	FY 2017	FY 2018 Base	FY 2018 OCO	FY 2018 Total	FY 2019	FY 2020	FY 2021	FY 2022	Cost To Complete	Total Cost	
• OPAF: BA03: Line Item # 833170: Mission Planning Systems	8.512	9.539	9.403	0.000	9.403	9.345	9.511	9.681	9.857	Continuing	Continuing	
Remarks												
D. Acquisition Strategy												
N/A												

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Exhibit R-2A, RDT&E Project Justification: FY 2018 Air Force		Date: May 2017
Appropriation/Budget Activity 3600 / 7	R-1 Program Element (Number/Name) PE 0208006F / <i>Mission Planning Systems</i>	Project (Number/Name) 675380 / <i>Mission Planning Systems (MPS) Modernization</i>

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.

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Exhibit R-3, RDT&E Project Cost Analysis: FY 2018 Air Force												Date: May 2017			
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					
Product Development (\$ in Millions)				FY 2016		FY 2017		FY 2018 Base		FY 2018 OCO		FY 2018 Total			
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Cost To Complete	Total Cost	Target Value of Contract
Mission Planning Software Development (MPEC II)	C/Various	Various : Various	116.277	14.796	Nov 2015	24.261	Nov 2016	28.925	Nov 2017	0.000		28.925	Continuing	Continuing	-
A-10 Modernization	PO	Organic : Hill AFB, UT	1.917	0.000		0.000		0.000		0.000		0.000	0.000	1.917	1.917
F-16 Modernization	PO	Organic : Hill AFB, UT	17.961	0.000	Nov 2015	0.000		0.000		0.000		0.000	0.000	17.961	17.961
EC-130H Modernization	PO	Organic : Robins AFB, GA	3.694	1.010	Jan 2016	1.011	Jan 2017	2.360	Jan 2018	0.000		2.360	Continuing	Continuing	-
HH-60G/HC-130	PO	Organic : Robins AFB, GA	2.208	1.789	Nov 2015	0.322	Nov 2016	2.170	Nov 2017	0.000		2.170	Continuing	Continuing	-
F-22 MilCloud SIL	MIPR	GSA : Washington, DC	0.062	0.043	Dec 2015	0.000		0.000		0.000		0.000	0.000	0.105	0.062
MAF AMC Transition Tools	MIPR	AMCOM : Redstone Arsenal, AL	4.632	0.000		0.000		0.000		0.000		0.000	0.000	4.632	2.082
SMACC CSAR Tools	MIPR	Various : Various	1.088	0.536	Jan 2016	0.908	Jan 2017	2.132	Jan 2018	0.000		2.132	Continuing	Continuing	-
Systems Engineering and Integration	C/CPAF	Leidos, Inc. : Reston, VA	43.862	7.579	Nov 2015	8.205	Nov 2016	9.701	Nov 2017	0.000		9.701	Continuing	Continuing	-
Framework	C/FPIF	Northrop Grumman : Herndon, VA	5.040	3.708	Jan 2016	6.231	Jan 2017	6.751	Jan 2018	0.000		6.751	Continuing	Continuing	-
Common Components	C/Various	Various : Various	33.552	4.648	Nov 2015	5.996	Nov 2016	7.948	Nov 2017	0.000		7.948	Continuing	Continuing	-
Subtotal			230.293	34.109		46.934		59.987		0.000		59.987	-	-	-
Support (\$ in Millions)				FY 2016		FY 2017		FY 2018 Base		FY 2018 OCO		FY 2018 Total			
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Cost To Complete	Total Cost	Target Value of Contract
Software Engineering	C/T&M	SEI : Pittsburgh, PA	0.000	0.080	Nov 2015	0.000		0.000		0.000		0.000	Continuing	Continuing	-
Cost Estimating	C/T&M	Tecolote Inc : Goleta, CA	1.083	0.167	Nov 2015	0.090	Nov 2016	0.020	Nov 2017	0.000		0.020	Continuing	Continuing	-
Subtotal			1.083	0.247		0.090		0.020		0.000		0.020	-	-	-

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Exhibit R-3, RDT&E Project Cost Analysis: FY 2018 Air Force													Date: May 2017		
Appropriation/Budget Activity 3600 / 7						R-1 Program Element (Number/Name) PE 0208006F / <i>Mission Planning Systems</i>				Project (Number/Name) 675380 / <i>Mission Planning Systems (MPS) Modernization</i>					

Test and Evaluation (\$ in Millions)				FY 2016		FY 2017		FY 2018 Base		FY 2018 OCO		FY 2018 Total			
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Cost To Complete	Total Cost	Target Value of Contract
Responsible Test Organization (RTO)	PO	46TS : Eglin AFB, FL	26.470	2.860	Dec 2015	3.882	Dec 2016	4.246	Dec 2017	0.000		4.246	Continuing	Continuing	-
Certification and Accreditation	MIPR	JITC : Fort Huachuca, AZ	0.124	0.040	Feb 2016	0.111	Feb 2017	0.113	Feb 2018	0.000		0.113	Continuing	Continuing	-
Type I Training	C/FP	Spiral Solutions & Technologies, Inc. : Bellevue, NE	4.037	0.530	Jul 2016	0.985	Jul 2017	1.223	Jul 2018	0.000		1.223	Continuing	Continuing	-
Field Representative Hardware	C/Various	Various : Various	0.179	0.410	Nov 2015	0.312	Nov 2016	0.421	Nov 2017	0.000		0.421	Continuing	Continuing	-
Subtotal			30.810	3.840		5.290		6.003		0.000		6.003	-	-	-

Management Services (\$ in Millions)				FY 2016		FY 2017		FY 2018 Base		FY 2018 OCO		FY 2018 Total			
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Cost To Complete	Total Cost	Target Value of Contract
Engineering and Technical Support	RO	MITRE Corp : Bedford, MA	14.371	2.753	Oct 2015	3.482	Oct 2016	0.393	Oct 2017	0.000		0.393	Continuing	Continuing	-
Program Management Administration	Various	Various : Various	31.977	5.837	Nov 2015	4.992	Nov 2016	9.913	Nov 2017	0.000		9.913	Continuing	Continuing	-
Subtotal			46.348	8.590		8.474		10.306		0.000		10.306	-	-	-

			Prior Years	FY 2016		FY 2017		FY 2018 Base		FY 2018 OCO		FY 2018 Total	Cost To Complete	Total Cost	Target Value of Contract
Project Cost Totals			308.534	46.786		60.788		76.316		0.000		76.316	-	-	-

Remarks

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Exhibit R-4, RDT&E Schedule Profile: FY 2018 Air Force

Date: May 2017

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

	FY 2016				FY 2017				FY 2018				FY 2019				FY 2020				FY 2021				FY 2022			
	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4
F-15 v4.0 Fielding																												
F-15 v5.0 Fielding																												
F-15 v6.0 Fielding																												
F-16 Blk 30 SCU 9 Fielding																												
F-16 Blk 40/50 M7.1 Fielding																												
F-16 Blk 40/50 M7.2 First																												
F-16 Blk 40/50 M7.2 Fielding																												
F-22 v13.0 Fielding																												
F-22 v14.0 Fielding																												
B-1 Release 9 Fielding																												
B-1 Release 11 Fielding																												
SMACC E-3/ E-8 Release 2.1 Fielding																												
SMACC E-3/E8 Release 2.4 Fielding																												
SMACC E-3/E8 Release 2.5 Fielding																												
SMACC EC-130H Release 2.0																												
SMACC EC-130H Release 2.1 Fielding																												
SMACC EC-130H Release 2.2 Fielding																												
SMACC EC-130H Release 2.3 Fielding																												
SMACC EC-130H Release 2.4 Fielding																												
SMACC E-3 DRAGON Release 3 Fielding																												
SMACC E-3 DRAGON Release 3.1 Fielding																												
SMACC E-3 DRAGON Release 3.2 Fielding																												
SMACC E-3 DRAGON Release 3.3 Fielding																												
SMACC RC-135 Release 3.4 Fielding																												

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Exhibit R-4, RDT&E Schedule Profile: FY 2018 Air Force																								Date: May 2017															
Appropriation/Budget Activity												R-1 Program Element (Number/Name)								Project (Number/Name)																			
3600 / 7												PE 0208006F / Mission Planning Systems								675380 / Mission Planning Systems (MPS) Modernization																			
												FY 2016				FY 2017				FY 2018				FY 2019				FY 2020				FY 2021				FY 2022			
												1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4
SMACC RC-135 Release 3.5 Fielding												██																											

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Exhibit R-4A, RDT&E Schedule Details: FY 2018 Air Force			Date: May 2017
Appropriation/Budget Activity 3600 / 7	R-1 Program Element (Number/Name) PE 0208006F / <i>Mission Planning Systems</i>	Project (Number/Name) 675380 / <i>Mission Planning Systems (MPS) Modernization</i>	

Schedule Details

Events	Start		End	
	Quarter	Year	Quarter	Year
F-15 v4.0 Fielding	2	2017	2	2017
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	1	2017	2	2017
F-16 Blk 40/50 M7.2 First	2	2017	2	2017
F-16 Blk 40/50 M7.2 Fielding	3	2019	3	2019
F-22 v13.0 Fielding	4	2017	4	2017
F-22 v14.0 Fielding	1	2021	1	2021
B-1 Release 9 Fielding	1	2018	1	2018
B-1 Release 11 Fielding	3	2020	3	2020
SMACC E-3/ E-8 Release 2.1 Fielding	4	2019	4	2019
SMACC E-3/E8 Release 2.4 Fielding	4	2020	4	2020
SMACC E-3/E8 Release 2.5 Fielding	4	2021	4	2021
SMACC EC-130H Release 2.0	4	2017	4	2017
SMACC EC-130H Release 2.1 Fielding	1	2019	1	2019
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	3	2018	3	2018
SMACC E-3 DRAGON Release 3.1 Fielding	3	2019	3	2019
SMACC E-3 DRAGON Release 3.2 Fielding	1	2021	1	2021

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Exhibit R-4A, RDT&E Schedule Details: FY 2018 Air Force			Date: May 2017	
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 3.3 Fielding	2	2022	2	2022
SMACC RC-135 Release 3.4 Fielding	4	2020	4	2020
SMACC RC-135 Release 3.5 Fielding	4	2021	4	2021
SMACC RC-135 Release 3.6 Fielding	4	2022	4	2022
MAFPS Release 2 Fielding	2	2019	2	2019
GM 1.4 (KC-46) Release 1 Fielding	4	2018	4	2018

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Exhibit R-2A, RDT&E Project Justification: FY 2018 Air Force										Date: May 2017		
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 2016	FY 2017	FY 2018 Base	FY 2018 OCO	FY 2018 Total	FY 2019	FY 2020	FY 2021	FY 2022	Cost To Complete	Total Cost
675385: MPS Increment 5	0.000	0.000	3.752	0.818	0.000	0.818	0.000	0.000	0.000	0.000	0.000	4.570
Quantity of RDT&E Articles	-	-	-	-	-	-	-	-	-	-		

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 and begin Operational Testing (OT) 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 a continuation of efforts previously started under the development umbrella of the MPS Modernization project. The overall purpose of MPS is to provide a suite of mission planning systems that can be integrated with USAF Command, Control, Communications, Computers and Intelligence (C4I) systems for the operational management of Combat Air Force (CAF) and Mobility Air Force (MAF) aerial assets and the support of USAF training requirements. MPS allows aircrews to electronically receive tasking orders, intelligence information, target coordinates, imagery and other information. This information is then used to organize and prepare flight (including cargo airdrop) and weapons delivery planning data (e.g., maps, charts, imagery, flight logs, radar predications, and navigation databases) this is electronically transferred to aircraft and weapons.

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
- 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

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 Portable Flight Planning Systems (PFPS) mission planning systems which is sun setting in August 2018. Additional warfighter benefits include:

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Exhibit R-2A, RDT&E Project Justification: FY 2018 Air Force			Date: May 2017		
Appropriation/Budget Activity 3600 / 7		R-1 Program Element (Number/Name) PE 0208006F / Mission Planning Systems	Project (Number/Name) 675385 / MPS Increment 5		
<ul style="list-style-type: none">- Color moving map (Digimap) Common Component- Enhanced Air Refueling Common Component- Aircraft Flight Performance Module (FPM)/Take-Off and Landing Data (TOLD)/ Vehicle Install Package (VIP) Development- Communication, Navigation, Surveillance/Air Traffic Management (CNS/ATM) certified navigation avionics images <p>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:</p> <ul style="list-style-type: none">- 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 2016	FY 2017	FY 2018
Title: MPS Increment 5			0.000	3.752	0.818
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).					
FY 2016 Accomplishments: FY16 accomplishments are included in the MAF Modernization (overarching MPS project 675380) section of this document.					
FY 2017 Plans: MAFPS: <ul style="list-style-type: none">- Complete the development of MAFPS Release 1 operational Testing in the AMC enclaves and field. AMC Transition: <ul style="list-style-type: none">- Complete the development of the Air Mobility Command (AMC) Mission Planning Environment (MPE) and begin testing the C-17 Global Mobility (GM) MPE Framework, Unique Planning Component, and Common Component- Complete (GM) developmental testing for the for C-130, C-5, KC-10 and KC-135 MPE- Develop and reuse Navy Air Refueling Tool SMACC CSAR: <ul style="list-style-type: none">- 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.					
FY 2018 Plans:					

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Exhibit R-2A, RDT&E Project Justification: FY 2018 Air Force			Date: May 2017
Appropriation/Budget Activity 3600 / 7	R-1 Program Element (Number/Name) PE 0208006F / <i>Mission Planning Systems</i>	Project (Number/Name) 675385 / <i>MPS Increment 5</i>	

B. Accomplishments/Planned Programs (\$ in Millions)	FY 2016	FY 2017	FY 2018
<p>MAF Modernization:</p> <ul style="list-style-type: none"> - Will complete both operational testing and fielding for the GM 1.4 (KC-46) MPE - Will complete the operational testing of the AMC MPE (C-17) MPE (FW, UPC, and CC) and complete testing for the AMC GM (C-130, C-5, KC-10 and KC-135) MPE - Will begin development of GM Sustainment ECP <p>Special Mission ACC (SMACC):</p> <ul style="list-style-type: none"> - Will develop follow-on MPE's for E-3 DRAGON v3.2 and EC-130 v2.1 - Continue development, testing, and CSAR fielding <p>MAF Automated Flight Planning Service (MAFPS):</p> <ul style="list-style-type: none"> - Will continue IOT&E and Field Release 1 - Will continue Release 2 development 			
Accomplishments/Planned Programs Subtotals	0.000	3.752	0.818

C. Other Program Funding Summary (\$ in Millions)

<u>Line Item</u>	<u>FY 2016</u>	<u>FY 2017</u>	<u>FY 2018</u> <u>Base</u>	<u>FY 2018</u> <u>OCO</u>	<u>FY 2018</u> <u>Total</u>	<u>FY 2019</u>	<u>FY 2020</u>	<u>FY 2021</u>	<u>FY 2022</u>	<u>Cost To</u> <u>Complete</u>	<u>Total Cost</u>
• N/A: N/A	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	-	-

Remarks

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.

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Exhibit R-2A, RDT&E Project Justification: FY 2018 Air Force		Date: May 2017
Appropriation/Budget Activity 3600 / 7	R-1 Program Element (Number/Name) PE 0208006F / <i>Mission Planning Systems</i>	Project (Number/Name) 675385 / <i>MPS Increment 5</i>
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.		
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.		

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Exhibit R-3, RDT&E Project Cost Analysis: FY 2018 Air Force												Date: May 2017			
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)				FY 2016		FY 2017		FY 2018 Base		FY 2018 OCO		FY 2018 Total			
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	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		0.254	Nov 2016	0.000		0.000		0.000	0.000	0.254	-
HH-60/HC-130J/N/P Release 1	PO	Organic : Robins AFB, GA	0.000	0.000		0.272	Nov 2016	0.068	Nov 2017	0.000		0.068	0.000	0.340	-
SM-ACC CSAR Tools	MIPR	Various : Various	0.000	0.000		0.432	Dec 2016	0.000		0.000		0.000	0.000	0.432	-
Systems Engineering and Integration	C/CPAF	Leidos, Inc. : Reston, VA	0.000	0.000		0.931	Nov 2016	0.274	Nov 2017	0.000		0.274	0.000	1.205	-
Air Refueling Tool	C/FFP	Navy Mission Planning Systems : Point Mugu, CA	0.000	0.000		0.358	Feb 2017	0.000		0.000		0.000	0.000	0.358	-
Subtotal			0.000	0.000		2.247		0.342		0.000		0.342	0.000	2.589	-
Support (\$ in Millions)				FY 2016		FY 2017		FY 2018 Base		FY 2018 OCO		FY 2018 Total			
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Cost To Complete	Total Cost	Target Value of Contract
Cost Estimating	C/T&M	Tecolote Inc. : Goleta, CA	0.000	0.000		0.028	Nov 2016	0.000		0.000		0.000	0.000	0.028	-
Subtotal			0.000	0.000		0.028		0.000		0.000		0.000	0.000	0.028	-
Test and Evaluation (\$ in Millions)				FY 2016		FY 2017		FY 2018 Base		FY 2018 OCO		FY 2018 Total			
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Cost To Complete	Total Cost	Target Value of Contract
Responsible Test Organization (RTO)	PO	46TS : Eglin AFB, FL	0.000	0.000		0.301	Dec 2016	0.104	Dec 2017	0.000		0.104	0.000	0.405	-
Type I Training	C/FP	Spiral solutions & Technologies, Inc. : Bellevue, NE	0.000	0.000		0.301	Jan 2017	0.104	Jan 2018	0.000		0.104	0.000	0.405	-
Subtotal			0.000	0.000		0.602		0.208		0.000		0.208	0.000	0.810	-

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Exhibit R-3, RDT&E Project Cost Analysis: FY 2018 Air Force												Date: May 2017			
Appropriation/Budget Activity 3600 / 7						R-1 Program Element (Number/Name) PE 0208006F / Mission Planning Systems				Project (Number/Name) 675385 / MPS Increment 5					
Management Services (\$ in Millions)				FY 2016		FY 2017		FY 2018 Base		FY 2018 OCO		FY 2018 Total			
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Cost To Complete	Total Cost	Target Value of Contract
Engineering and Technical Support	RO	MITRE Corp. : Bedford, MA	0.000	0.000		0.586	Nov 2016	0.170	Nov 2017	0.000		0.170	0.000	0.756	-
Program Management Administration	C/CPFF	Odyssey Systems Consulting Group, LTD. : Wakefield, MA	0.000	0.000		0.289	Nov 2016	0.098	Nov 2017	0.000		0.098	0.000	0.387	-
Subtotal			0.000	0.000		0.875		0.268		0.000		0.268	0.000	1.143	-
			Prior Years	FY 2016		FY 2017		FY 2018 Base		FY 2018 OCO		FY 2018 Total	Cost To Complete	Total Cost	Target Value of Contract
Project Cost Totals			0.000	0.000		3.752		0.818		0.000		0.818	0.000	4.570	-
Remarks															

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Exhibit R-4, RDT&E Schedule Profile: FY 2018 Air Force	Date: May 2017
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Appropriation/Budget Activity 3600 / 7	R-1 Program Element (Number/Name) PE 0208006F / <i>Mission Planning Systems</i>	Project (Number/Name) 675385 / <i>MPS Increment 5</i>
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	FY 2016				FY 2017				FY 2018				FY 2019				FY 2020				FY 2021				FY 2022			
	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4
MAFPS Release 1 Fielding																												
AMC Transition C-17 Release 1 Fielding																												
AMC Transition C-130 Release 1 Fielding																												
AMC Transition Airdrop Release 1 Fielding																												
SMACC CSAR MPS v1 Release 1 Fielding																												
Delivered (Consolidated Air Drop Tool) CAT v4.1																												
Development of CAT v5.0																												

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Exhibit R-4A, RDT&E Schedule Details: FY 2018 Air Force			Date: May 2017
Appropriation/Budget Activity 3600 / 7	R-1 Program Element (Number/Name) PE 0208006F / <i>Mission Planning Systems</i>	Project (Number/Name) 675385 / <i>MPS Increment 5</i>	

Schedule Details

Events	Start		End	
	Quarter	Year	Quarter	Year
MAFPS Release 1 Fielding	1	2018	1	2018
AMC Transition C-17 Release 1 Fielding	3	2017	4	2017
AMC Transition C-130 Release 1 Fielding	2	2018	2	2018
AMC Transition Airdrop Release 1 Fielding	2	2018	2	2018
SMACC CSAR MPS v1 Release 1 Fielding	4	2017	1	2018
Delivered (Consolidated Air Drop Tool) CAT v4.1	1	2016	2	2016
Development of CAT v5.0	4	2016	2	2018