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Exhibit R-2, RDT&E Budget Item Justification: PB 2024 Air Force **Date:** March 2023

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| Appropriation/Budget Activity 3600: <i>Research, Development, Test & Evaluation, Air Force I BA 7: Operational Systems Development</i> | R-1 Program Element (Number/Name) PE 0208006F / <i>Mission Planning Systems</i> |
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| COST (\$ in Millions) | Prior Years | FY 2022 | FY 2023 | FY 2024 Base | FY 2024 OCO | FY 2024 Total | FY 2025 | FY 2026 | FY 2027 | FY 2028 | Cost To Complete | Total Cost |
|---|-------------|---------|---------|--------------|-------------|---------------|---------|---------|---------|---------|------------------|------------|
| Total Program Element | 0.000 | 92.956 | 98.807 | 96.272 | 0.000 | 96.272 | 94.881 | 97.247 | 99.241 | 102.835 | Continuing | Continuing |
| 675302: <i>Precision Aerial Delivery Systems (PADS)</i> | 0.000 | 1.865 | 1.964 | 2.007 | 0.000 | 2.007 | 2.053 | 2.103 | 2.147 | 2.225 | Continuing | Continuing |
| 675380: <i>Mission Planning Systems (MPS) Modernization</i> | 0.000 | 91.091 | 96.843 | 94.265 | 0.000 | 94.265 | 92.828 | 95.144 | 97.094 | 100.610 | Continuing | Continuing |

Program MDAP/MAIS Code: 509

A. Mission Description and Budget Item Justification

Budget line 0208006F funds the Precision Aerial Delivery Systems (PADS) and Mission Planning Systems (MPS) Modernization efforts.

PADS is the primary airdrop mission planning system for all precision guided ballistic airdrop missions when the mission profile or surface-to-air threat assessment warrants a standoff precision delivery. The system enables high-altitude airdrop delivery to forward ground forces while mitigating exposure to surface threats. FY24 PADS efforts consists of the following, but not limited to, software upgrades that will increase accuracy for airdrops and allow for, single pass capability to enhance survivability.

MPS is a computer-based flight planning software and hardware program, it performs an essential task that must be completed prior to any fixed or rotary wing aircraft sortie. MPS technology consists of layered software, designed with open architected standards and modular construction. The software integrates the latest intelligence, weather, weapons, aircraft performance, and real-time threat data into flight management systems. Framework software, the core of the legacy MPS Joint Mission Planning System (JMPS) utilized by the Air Force and the Navy, focuses solely on pre-mission home station operations. JMPS Open Mission System (JOMS) focuses on connected and disconnected planning and execution for home station training as well as deployed and sustained operations.

FY24 funding supports development of planning software to enable new Operational Flight Program (OFF) driven capabilities (e.g., new weapons, avionics, etc.) in platforms. FY24 MPS Modernization efforts consist of the following but not limited to: 1) deploy additional increments of capability for JMPS modernization to production cloud environment and conduct risk reduction development efforts; 2) enhance MAF Survivability by supporting on-aircraft federated mission systems; and 3) update CAF, MAF, SMACC Mission Planning Environments.

This program element may include necessary civilian pay expenses required to manage, execute, and deliver Mission Planning System capability. The use of such program funds would be in addition to the civilian pay expenses budgeted in program element 0605827F, 0605828F, 0605829F, 0605831F, 0605832F, 0605833F, 0605898F, 0606398F. In FY22 0.910M was expended for civilian pay expenses in this program element, and in FY23 1.061M is forecasted for civilian pay expenses.

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. Program Change Summary (\$ in Millions) | FY 2022 | FY 2023 | FY 2024 Base | FY 2024 OCO | FY 2024 Total |
|---|----------------|----------------|---------------------|--------------------|----------------------|
| Previous President's Budget | 96.057 | 99.214 | 99.504 | 0.000 | 99.504 |
| Current President's Budget | 92.956 | 98.807 | 96.272 | 0.000 | 96.272 |
| Total Adjustments | -3.101 | -0.407 | -3.232 | 0.000 | -3.232 |
| • 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 | -3.101 | 0.000 | | | |
| • Other Adjustments | 0.000 | -0.407 | -3.232 | 0.000 | -3.232 |

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| Exhibit R-2A, RDT&E Project Justification: PB 2024 Air Force | | | | | | | | | | Date: March 2023 | | |
| 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> | | | |
| COST (\$ in Millions) | Prior Years | FY 2022 | FY 2023 | FY 2024 Base | FY 2024 OCO | FY 2024 Total | FY 2025 | FY 2026 | FY 2027 | FY 2028 | Cost To Complete | Total Cost |
| 675302: <i>Precision Aerial Delivery Systems (PADS)</i> | 0.000 | 1.865 | 1.964 | 2.007 | 0.000 | 2.007 | 2.053 | 2.103 | 2.147 | 2.225 | Continuing | Continuing |
| Quantity of RDT&E Articles | - | - | - | - | - | - | - | - | - | - | | |

A. Mission Description and Budget Item Justification

Budget line 0208006F funds the Joint Precision Airdrop System (JPADS). JPADS is the primary airdrop mission planning system for all precision guided ballistic airdrop missions when the mission profile mission profile or surface-to-air threat assessment warrants a standoff precision delivery. The system enables high-altitude airdrop delivery to forward ground forces, while mitigating exposure to surface threats.

The Consolidated Airdrop Tool (CAT) is the key JPADS-MP software deliverable to enable air drop. JPADS-MP enables JPADS to increase the accuracy of airdrop mission planning by improving aircraft, payload, and chute specific calculations. Future initiatives are designated to achieve automation of airdrop planning and execution to reduce task saturation in the cockpit. These efforts include the ability to automatically receive and use real-time winds in any location, calculate release points, support development of field representative hardware and perform precision airdrops in a single pass.

FY24 funding will provide multiple benefits and increased capabilities to USAF mission planners and the Joint Services, including but not limited to: 1) supporting high-altitude, precise, airdrop delivery of cargo and resources to ground forces while mitigating surface-to-air threats; 2) developing single-pass airdrop capability to enhance survivability; and 3) enabling control of Army developed aerial delivery system.

B. Accomplishments/Planned Programs (\$ in Millions)

| | FY 2022 | FY 2023 | FY 2024 Base | FY 2024 OCO | FY 2024 Total |
|--|----------------|----------------|---------------------|--------------------|----------------------|
| Title: JPADS-MP Phase I | 1.865 | 1.964 | 2.007 | 0.000 | 2.007 |
| Description: Funds will be used for the development, integration, and test activities of the JPADS program | | | | | |
| FY 2023 Plans: Activities supported with FY23 funding include, but are not limited to the following: -Will further develop the ability to automatically receive and use real-time winds in any location -Will modernize and further develop release point and airdrop in a single pass calculation -Will improve the ability to conduct real-time objective area analysis to calculate probable damage estimates and execute dynamic re-tasking -Will enhance the ability to conduct post-drop assessments | | | | | |
| FY 2024 Base Plans: Activities will include, but are not limited to the following: | | | | | |

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| B. Accomplishments/Planned Programs (\$ in Millions) | FY 2022 | FY 2023 | FY 2024 Base | FY 2024 OCO | FY 2024 Total |
|--|----------------|----------------|---------------------|--------------------|----------------------|
| -Will further develop the Next-Generation Open Mission Services (NOMS) mission planning evolutions -Will enable further development and quarterly releases of NOMS software -Will test and integrate the single-pass airdrop and real-time objective area analysis capability. FY 2024 OCO Plans: No OCO requested. FY 2023 to FY 2024 Increase/Decrease Statement: Minor increase due to inflation. | | | | | |
| Accomplishments/Planned Programs Subtotals | 1.865 | 1.964 | 2.007 | 0.000 | 2.007 |

| C. Other Program Funding Summary (\$ in Millions) | | | | | | | | | | | |
|--|----------------|----------------|---------------------|--------------------|----------------------|----------------|----------------|----------------|----------------|-------------------------|-------------------|
| <u>Line Item</u> | <u>FY 2022</u> | <u>FY 2023</u> | <u>FY 2024 Base</u> | <u>FY 2024 OCO</u> | <u>FY 2024 Total</u> | <u>FY 2025</u> | <u>FY 2026</u> | <u>FY 2027</u> | <u>FY 2028</u> | <u>Cost To Complete</u> | <u>Total Cost</u> |
| • OPAF 03 Line Item 833170: <i>Mission Planning Systems</i> | 14.871 | 15.688 | 17.953 | - | 17.953 | 18.282 | 18.655 | - | - | Continuing | Continuing |

Remarks
No OCO Request FY FY24.

D. Acquisition Strategy
The MPS PADS efforts are developed and fielded using a variety of contracting vehicles. Efforts to accomplish activities such as Scaled Agile Framework (SAFe) software development methodology, systems engineering and integration, training, and support are completed using competitively awarded contracts. Mission Planning utilizes established Government Wide Acquisition Contract (GWAC) ID/IQ schedules, with a larger pool of vendors, to competitively award Task Orders. These vehicles are utilized for the development and fielding of software.

Program Support Costs (PSC) 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. The Systems Engineering & Integration Contract (SEIC) is a competitively awarded Single Award ID/IQ. Other efforts are accomplished using 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) is the Contracting Authority and provides contracts, legal, and comptroller support.

Air Force Program Executive Officer (PEO) for Digital is the PEO. Milestone Decision Authority (MDA) is delegated to the Branch Chief.

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| Exhibit R-3, RDT&E Project Cost Analysis: PB 2024 Air Force | | | | | | | | | | | | Date: March 2023 | | | | |
|---|------------------------|------------------------------------|-------------|--|------------|---------|------------|---|------------|-------------|------------|------------------|------------------|------------|--------------------------|--|
| Appropriation/Budget Activity | | | | R-1 Program Element (Number/Name) | | | | Project (Number/Name) | | | | | | | | |
| 3600 / 7 | | | | PE 0208006F / Mission Planning Systems | | | | 675302 / Precision Aerial Delivery Systems (PADS) | | | | | | | | |
| Product Development (\$ in Millions) | | | | FY 2022 | | FY 2023 | | FY 2024 Base | | FY 2024 OCO | | FY 2024 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 | C/T&M | Various : Various | 0.000 | 1.533 | Nov 2021 | 1.214 | Nov 2022 | 1.365 | Nov 2023 | - | | 1.365 | Continuing | Continuing | - | |
| Systems Engineering and Integration | C/T&M | Leidos, Inc. : Reston, VA | 0.000 | 0.090 | Jan 2022 | 0.482 | Jan 2023 | 0.368 | Jan 2024 | - | | 0.368 | Continuing | Continuing | - | |
| Subtotal | | | 0.000 | 1.623 | | 1.696 | | 1.733 | | - | | 1.733 | Continuing | Continuing | N/A | |
| Support (\$ in Millions) | | | | FY 2022 | | FY 2023 | | FY 2024 Base | | FY 2024 OCO | | FY 2024 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 | Quantech Services : Lexington, MA | 0.000 | 0.017 | Nov 2021 | 0.018 | Nov 2022 | 0.019 | Nov 2023 | - | | 0.019 | Continuing | Continuing | - | |
| Subtotal | | | 0.000 | 0.017 | | 0.018 | | 0.019 | | - | | 0.019 | Continuing | Continuing | N/A | |
| Test and Evaluation (\$ in Millions) | | | | FY 2022 | | FY 2023 | | FY 2024 Base | | FY 2024 OCO | | FY 2024 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 | 96CTG : Eglin AFB, FL | 0.000 | 0.225 | Dec 2021 | 0.230 | Dec 2022 | 0.235 | Dec 2023 | - | | 0.235 | Continuing | Continuing | - | |
| Operational Testing | PO | 28TH TEST AND EVAL : Eglin AFB, FL | 0.000 | - | | 0.020 | Apr 2023 | 0.020 | Apr 2024 | - | | 0.020 | Continuing | Continuing | - | |
| Subtotal | | | 0.000 | 0.225 | | 0.250 | | 0.255 | | - | | 0.255 | Continuing | Continuing | N/A | |
| Project Cost Totals | | | 0.000 | 1.865 | | 1.964 | | 2.007 | | - | | 2.007 | Continuing | Continuing | N/A | |
| Remarks | | | | | | | | | | | | | | | | |

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| Exhibit R-4, RDT&E Schedule Profile: PB 2024 Air Force | | Date: March 2023 |
| 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 2022 | | | | FY 2023 | | | | FY 2024 | | | | FY 2025 | | | | FY 2026 | | | | FY 2027 | | | | FY 2028 | | | |
|---------|---|---|---|---------|---|---|---|---------|---|---|---|---------|---|---|---|---------|---|---|---|---------|---|---|---|---------|---|---|---|
| 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 |

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| Precision Aerial Delivery Systems (PADS) | |
| JPADS-MP Program Increment (PI) 20 | █ |
| JPADS-MP Program Increment (PI) 21 | █ |
| JPADS-MP Program Increment (PI) 22 | █ |
| JPADS-MP Program Increment (PI) 23 | █ |
| JPADS-MP Program Increment (PI) 24 | █ |
| JPADS-MP Program Increment (PI) 25 | █ |
| JPADS-MP Program Increment (PI) 26 | █ |
| JPADS-MP Program Increment (PI) 27 | █ |
| JPADS-MP Program Increment (PI) 28 | █ |
| JPADS-MP Program Increment (PI) 29 | █ |
| JPADS-MP Program Increment (PI) 30 | █ |
| JPADS-MP Program Increment (PI) 31 | █ |
| JPADS-MP Program Increment (PI) 32 | █ |
| JPADS-MP Program Increment (PI) 33 | █ |
| JPADS-MP Program Increment (PI) 34 | █ |
| JPADS-MP Program Increment (PI) 35 | █ |
| JPADS-MP Program Increment (PI) 36 | █ |
| JPADS-MP Program Increment (PI) 37 | █ |
| JPADS-MP Program Increment (PI) 38 | █ |
| JPADS-MP Program Increment (PI) 39 | █ |

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| Exhibit R-4A, RDT&E Schedule Details: PB 2024 Air Force | | Date: March 2023 |
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Schedule Details

| Events by Sub Project | Start | | End | |
|--|---------|------|---------|------|
| | Quarter | Year | Quarter | Year |
| <i>Precision Aerial Delivery Systems (PADS)</i> | | | | |
| JPADS-MP Program Increment (PI) 20 | 1 | 2023 | 1 | 2023 |
| JPADS-MP Program Increment (PI) 21 | 2 | 2023 | 2 | 2023 |
| JPADS-MP Program Increment (PI) 22 | 3 | 2023 | 3 | 2023 |
| JPADS-MP Program Increment (PI) 23 | 4 | 2023 | 4 | 2023 |
| JPADS-MP Program Increment (PI) 24 | 1 | 2024 | 1 | 2024 |
| JPADS-MP Program Increment (PI) 25 | 2 | 2024 | 2 | 2024 |
| JPADS-MP Program Increment (PI) 26 | 3 | 2024 | 3 | 2024 |
| JPADS-MP Program Increment (PI) 27 | 4 | 2024 | 4 | 2024 |
| JPADS-MP Program Increment (PI) 28 | 1 | 2025 | 1 | 2025 |
| JPADS-MP Program Increment (PI) 29 | 2 | 2025 | 2 | 2025 |
| JPADS-MP Program Increment (PI) 30 | 3 | 2025 | 3 | 2025 |
| JPADS-MP Program Increment (PI) 31 | 4 | 2025 | 4 | 2025 |
| JPADS-MP Program Increment (PI) 32 | 1 | 2026 | 1 | 2026 |
| JPADS-MP Program Increment (PI) 33 | 2 | 2026 | 2 | 2026 |
| JPADS-MP Program Increment (PI) 34 | 3 | 2026 | 3 | 2026 |
| JPADS-MP Program Increment (PI) 35 | 4 | 2026 | 4 | 2026 |
| JPADS-MP Program Increment (PI) 36 | 1 | 2027 | 1 | 2027 |
| JPADS-MP Program Increment (PI) 37 | 2 | 2027 | 2 | 2027 |
| JPADS-MP Program Increment (PI) 38 | 3 | 2027 | 3 | 2027 |
| JPADS-MP Program Increment (PI) 39 | 4 | 2027 | 4 | 2027 |

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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) 675380 / <i>Mission Planning Systems (MPS) Modernization</i> | | | |
| COST (\$ in Millions) | Prior Years | FY 2022 | FY 2023 | FY 2024 Base | FY 2024 OCO | FY 2024 Total | FY 2025 | FY 2026 | FY 2027 | FY 2028 | Cost To Complete | Total Cost |
| 675380: <i>Mission Planning Systems (MPS) Modernization</i> | 0.000 | 91.091 | 96.843 | 94.265 | 0.000 | 94.265 | 92.828 | 95.144 | 97.094 | 100.610 | Continuing | Continuing |
| Quantity of RDT&E Articles | - | - | - | - | - | - | - | - | - | - | | |

A. Mission Description and Budget Item Justification

Mission Planning 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, 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 MPS Modernization project, following a multi-year strategic roadmap to migrate mission planning capabilities as discussed above into a services-based open architecture, focuses on delivering JMPS Open Mission Systems (JOMS) environment for mission planning supporting Combat Air Forces (CAF) and Mobility Air Forces (MAF), which includes the development, test and support of Mission Planning Environments (MPEs) to support combat and mobility aircraft, including the B-1, C-5, C-17, C-130, HC-130, EC-130, E-3, E-8, F-15, F-22A, KC-10, KC-46, KC-135, RC-135, HH-60, 6th generation aircraft, other platforms, as well as training aircraft, 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 that support modernizing the system architecture to JOMS 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 (OFF) requirements, such as new weapons, avionics upgrades, communications systems, etc. The OFFs requiring MPE updates under the CAF modernization effort include, but are not limited to, B-1 (Sustainment Blocks 17b, 17c, 18 and 19), F-15 (Suites 9.1, 9.1RR (Re-Release) for Data Transfer Module II (DTMII), 9.2, 10.x/Continuous Development & Integration (CD&I)) and F-22 update Release 3 through 5. 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). A key piece of the CAF modernization effort involves interfacing between the CAF platforms and the weapons using tools such as, but not limited to, Universal Armament Interface (UAI) and Mission Planning Certification Tool (MPCT). 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. Finally, CAF modernization also includes development of JOMS' Strike Mission Planning capabilities in collaboration with the Navy's Mission Planning Program Office. CAF MPE Modernization includes, but is not limited to, the following platform efforts:

a. F-15 Modernization Phase II & III: The F-15 Modernization program includes key initiatives on improving/adapting software lethality, survivability, readiness and affordability. Within the framework of Agile Software Cadence, development teams will provide appropriate software Sprints of development, innovation, and new/ or improved capabilities in support of the OFF. Software releases provided within each increment will be utilized by OFF for risk reduction testing. The F-15 OFF will update on a bi-annual release to the field to provide new capabilities to the warfighter. The F-15 Unique Planning Component, segmented into code modules, will change from a JMPS process and transition to use micro-services. These changes position the MPE to migrate to the loosely coupled web-based services and

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| <p>open standard interfaces of the JMPS Open Mission Systems (JOMS). Multiple software development efforts driven by OFP updates for F-15 Suites 9 will continue as sustainment initiatives until the OFP Common Development Initiative (CDI), removing the nomenclature of OFP Suites is in place. F-15 MPE Agile software initiatives will include, but not limited to, 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). Software enhancements to synthetic aperture radar planning tools (SAR-PT), global area reference tools, radar modernization updates (e.g. combat identification, radar planning tool enhancements), active warning survivability system(s), Advanced Dual Core Process II (ADCP- II) computer as well as Digital Transfer Device/Modules (DTD/DTM) modernized in support of operational capabilities to the F-15 OFP. The overall end state is a common OFP and one MPE baseline that supports all F-15 models -C, D, E, & EX. The F-15 Modernization program will develop micro services to integrate JOMS into the F-15 MPE.</p> <p>b. F-22 Modernization Phase II: The F-22 Modernization program consists of multiple software development efforts driven by OFP updates for Releases 3 through 5 as identified by ACC and the operational user plus future OFP releases. These new capabilities improve the F-22's lethality, survivability and tactical communications for the mission with sensor enhancements and updates to Link-16 Transmit, Mode 5 IFF Transmit and Interrogate and various classified projects. The F-22 MPE implements agile software development modernization moving from JMPS to JOMS development. JOMS efforts include creating a common baseline MPE/UPC that any platform can use and a blended MPE product that integrates initial JOMS capabilities into JMPS and generates mission data files in appropriate test jets. F-22 MPE team collaborating alongside USN's and F-35 Joint Program Office's (JPO) mission planning teams to deliver Next-Generation Open Mission System (NOMS) capabilities for Strike platforms. Mission Planning is working on pathfinder/exploratory OFP work that aims to provide pre-flight, dynamic re-planning and reduce the logistics footprint.</p> <p>c. B-1 Modernization Phase I: The B-1 Modernization program consists of multiple software development efforts driven by OFP updates for Sustainment Blocks 17b, 17c, 8 and 19. It will incrementally deliver the B-1 MPE to increase aircraft mission capabilities, including JASSM and LRASM weapon updates, and incorporate crypto modernization for Link-16 network enabled weapons. Agile software initiatives incorporated to improve software survivability, lethality, and readiness in support of the B-1 OFP and the warfighter. Additionally, B-1 MPE will add improved processing capability 64/128-bit environment, replace the mass storage unit where pre-recorded map and mission data is stored and develop micro services to integrate JOMS into the B-1 MPE.</p> <p>2) MAF MPS Modernization: efforts further the development of the MPS Agile Global Mobility and Special Mission (GMSM) Program. Initiated as an ACAT III program via ADM in August 2022, the GMSM program combines the MAF and SMACC modernization efforts. The shift to combining the modernization efforts and utilizing common components: 1) enables agile software deliverables; 2) minimizes platform schedule constraints; and 3) reduces platform dependencies within the operational flight program.</p> <p>a. For Air Mobility Command, the effort will provide new and improved mission planning capability to support C-17, C-130H, C-130J, C-5, KC-135, KC-10 and KC-46 Operational Flight Programs (OFP), Global C2, and AMC fuel efficiency requirements incorporating Mobility Air Forces Automated Flight Planning Service into the deployed squadron mission planning suite. It includes, but is not limited to, enhanced capabilities to accommodate avionics upgrades, precision airdrop improvements for increased combat battlefield airdrop accuracy, improved communications systems, interfaces with command and control systems, and improved weather data ingestion/utilization for various MAF platforms. Development efforts also include, but are not limited to, integrating improvements to MAF related 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, Consolidated Airdrop Tool (CAT), and the Weather CC.</p> | | |

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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) 675380 / <i>Mission Planning Systems (MPS) Modernization</i> |

b. For Air Combat Command, efforts related to Special Mission Air Combat Command (SMACC) include development, testing, and fielding of MP software for the E-3, E-8, RC-135 and EC-130. Combat Search and Rescue (CSAR). These efforts provide improved stability performance over the legacy mission planning system through enhanced architecture and baseline development, such as the improved transfer of mission data from the unique planning component to the HC-130J avionics suite and the 12 critical Digital Aeronautical Flight Information Files to integrate onto the smart multifunction color display for the HH-60G, resulting in mature JMPS mission planning environment for both CSAR platforms.

3) MPS Core Mission Planning (CMP) represents the basic core functions of the JMPS Software developed as microservices in a Common Development Environment (CDE) and is the core modernization effort utilizing the JOMS architecture to continuously develop and deploy core mission capabilities. In FY24, the program office will further develop CMP scope following the Software Acquisition and Practices (SWP) Acquisition Pathway. CMP develops and delivers common mission planning capabilities through NOMS infrastructure via incremental JOMS capability releases to Air Force aircraft platforms.

4) 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.

B. Accomplishments/Planned Programs (\$ in Millions)

| | FY 2022 | FY 2023 | FY 2024 Base | FY 2024 OCO | FY 2024 Total |
|---|----------------|----------------|---------------------|--------------------|----------------------|
| Title: F-15 Modernization Phase II and III | 2.975 | 10.126 | 9.015 | - | 9.015 |
| Description: Incorporates and enables use of new lethal and survivable capabilities being developed in the F-15 OFP. Increases readiness and affordability through incremental incorporation of JOMS microservices. | | | | | |
| FY 2023 Plans: | | | | | |
| - Will field MPE enhancements | | | | | |
| - Will support CD&I and incorporation of EX. | | | | | |
| - Will begin next generation JOMS mission planning development and integration of JOMS products for creation of an initial ""JOMS Common Baseline MPE/UPC"" that can be used by any platform to start development and refine over time for all platform capabilities. | | | | | |
| FY 2024 Base Plans: | | | | | |
| - Will implement Next Generation Open Mission Systems (NOMS)/JMPS Open Mission System (JOMS) software capabilities for a common F-15 OFP baseline (CD&I) that can be tested and flown by the warfighter that provides software survivability in a contested environment and has the flexibility to provide initial re-dynamic Mission Planning in-flight. | | | | | |

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| Exhibit R-2A, RDT&E Project Justification: PB 2024 Air Force | | | Date: March 2023 | | |
| 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 2022 | FY 2023 | FY 2024 Base | FY 2024 OCO | FY 2024 Total |
| - Will support OFP development requirements for JMPS. FY 2023 to FY 2024 Increase/Decrease Statement: Slight decrease due to timing of contract award. | | | | | |
| Title: F-22 Modernization Phase I and II Description: Incorporates and enables use of new lethal and survivable capabilities being developed in the F-22 OFP, including sensor enhancements, Link 16 Transmit, Mode 5 interrogate and transponder updates, SP1 upgrades, radar updates and pilot display updates. Increases readiness and affordability through incremental incorporation of JOMS microservices. FY 2023 Plans: - Will complete development, FQT, DT/OT and Field v14.3 sensor enhancements, radar updates and additional Link 16 and SP1 capabilities to support OFP Release 3. - Will begin v14.4 development for mode 5 interrogate/transponder updates and sensor enhancement upgrades to support OFP Release 4. - Will deploy a blended JMPS MPE with next generation JOMS Link 16 services for flight test in a jet. FY 2024 Base Plans: - Will begin implementation of Next Generation Open Mission Systems (NOMS)/JMPS Open Mission System (JOMS) software capabilities as a prototype for F-22 MPE and OFP. - Will ensure MPE software can be tested and flown by the warfighter that affords software survivability in a contested environment, has the flexibility to provide initial re- dynamic Mission Planning in-flight, and provides lethality and readiness software attributes that increase OFP capability. - Will support OFP development requirements for JMPS. FY 2023 to FY 2024 Increase/Decrease Statement: Minor increase for FY24 required for software technology improvements, implementation, and supporting OFP software requirements. | 14.387 | 9.010 | 9.690 | - | 9.690 |
| Title: B-1 Modernization Phase I and 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 2023 Plans: | 12.456 | 10.051 | 10.283 | - | 10.283 |

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| B. Accomplishments/Planned Programs (\$ in Millions) | FY 2022 | FY 2023 | FY 2024 Base | FY 2024 OCO | FY 2024 Total |
|---|----------------|----------------|---------------------|--------------------|----------------------|
| <p>- Will continue agile builds/releases (2 per year) to release 12.0.100 and 12.0.200.</p> <p>- Will continue development, FQT, DT/OT and Field Rel 12.0.100 and 12.0.200 to incorporate additional weapon delivery capability as required.</p> <p>- Will continue JOMS incorporation by transitioning appropriate route and weapon planning with the integration of the SPRTA tool into the fielded MPE.</p> <p>FY 2024 Base Plans:</p> <p>- Will design and implement Next Generation Open Mission Systems (NOMS)/JMPS Open Mission System (JOMS) software capabilities in support of B-1 OFP requirements.</p> <p>- Will ensure software tested and flown by the warfighter, survive in a contested environment, and has the flexibility to provide initial re-dynamic Mission Planning in-flight, and provides lethality and readiness software attribute that increase OFP capability.</p> <p>- Will continue to support OFP development requirements for JMPS.</p> <p>FY 2023 to FY 2024 Increase/Decrease Statement:</p> <p>Minor increase for FY24 required for software technology improvements, implementation, and supporting OFP software requirements.</p> | | | | | |
| <p>Title: MAF Modernization</p> <p>Description: MAF Modernization has evolved to embrace the tenets of agile development. Specifically, efforts have been combined into the Mission Planning System Agile Global Mobility and Special Mission (GMSM) Program for efficiency across program lines focused on the transition to the Joint Open Mission System (JOMS) architecture. For Air Mobility Command platforms, efforts incorporate improvements to the MAF aircraft through Tactical Airlift Mission Support System (TAMSS) tools, upgraded Link 16 for enhanced situational awareness and evolving employment concepts while continuing the development, testing, and fielding of the Agile Global Mobility (AGM) effort for the modernization of the JMPS Mission Planning Environment (MPE) for the C-5, C-17, C-130, KC-10, KC-135, and KC-46 to account for changes in aircraft Operational Flight Program (OFP) and global command and control as well as operational mission requirements. For Air Combat Command Platforms, efforts continue the modernization of previously fielded mission planning software environments for the E-3, E-8, EC-130, and RC-135. In addition, this effort continues modernization efforts for SMACC CSAR component for the HC-130J and sustainment efforts for the HH-60G helicopters. The GMSM Program is focused on improvements to lethality, survivability, readiness, and affordability across all efforts. Current aircraft OFP changes and evolving MAJCOM employment changes are addressed via agile development with multiple program increments, phase migration of capabilities to the JOMS and migration to the cloud.</p> | 14.865 | 17.762 | 18.232 | - | 18.232 |

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| Exhibit R-2A, RDT&E Project Justification: PB 2024 Air Force | | Date: March 2023 |
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| B. Accomplishments/Planned Programs (\$ in Millions) | FY 2022 | FY 2023 | FY 2024 Base | FY 2024 OCO | FY 2024 Total |
|--|----------------|----------------|---------------------|--------------------|----------------------|
| <p><i>FY 2023 Plans:</i></p> <ul style="list-style-type: none"> - Will rapidly improve fielded and prototype capabilities and update software design to improve lethality, survivability, readiness, and affordability of the aircraft mission planning and execution software while keeping current with aircraft OFP changes and MAJCOM employment changes. - Will accomplish via agile development with multiple program increments; phase migration of capabilities to the JOMS and migration to the cloud. - Will demonstrate Enterprise Open Mission System service Interoperability for C-17 and KC-46 that will support connected and disconnected mission execution. - Will test and promote JOMS software capability. - Will develop JOMS software release for C2ISR Platforms. Develop and Test s/w features for Global Mobility Platforms (target C-17 / KC-46). <p><i>FY 2024 Base Plans:</i></p> <ul style="list-style-type: none"> - Will continue to rapidly improve fielded and prototype capabilities and deliver software to improve lethality, survivability, readiness, and affordability of the aircraft mission planning and software execution while keeping current with aircraft OFP changes and MAJCOM employment changes. - Will continue agile development with multiple program increments; phase migration of capabilities to the JOMS and migration to the cloud in higher security levels. - Will demonstrate Enterprise Open Mission System service Interoperability for C-17 and KC-46 that will support connected and disconnected mission execution. - Will test JOMS software release for C2ISR Platforms against RC-135. - Will develop and Test s/w capabilities for Global Mobility Platforms (Target C-17 / KC-46). <p><i>FY 2023 to FY 2024 Increase/Decrease Statement:</i> Slight increase due to inflation.</p> | | | | | |
| <p><i>Title:</i> Special Mission ACC (SMACC)</p> <p><i>Description:</i> Continues the modernization of previously fielded mission planning software environments for the E-3, E-8, EC-130, and RC-135. In addition, this effort continues modernization efforts for SMACC CSAR component for the HC-130J and sustainment efforts for the HH-60G helicopters.</p> <p><i>FY 2023 Plans:</i></p> <ul style="list-style-type: none"> - Will continue agile builds/releases on a six-month cadence to release the final EC-130H, E-3, and E-8 Mission Planning products on the Joint Mission Planning System. | 23.570 | 14.399 | 14.772 | - | 14.772 |

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| Exhibit R-2A, RDT&E Project Justification: PB 2024 Air Force | | Date: March 2023 |
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B. Accomplishments/Planned Programs (\$ in Millions)

| | FY 2022 | FY 2023 | FY 2024 Base | FY 2024 OCO | FY 2024 Total |
|--|----------------|----------------|---------------------|--------------------|----------------------|
| <p>- Will start phase migration to the Next Generation Open Mission System (NOMS) software for the RC-135 mission planning capabilities. Continuous integration will be accomplished via several program increments (PIs) comprising the release.</p> <p>- Will continue agile development via quarterly software releases for the HH-60G helicopter</p> <p>- Will focus on advances in lethality and survivability to the Air Combat Command to maintain the aircraft into 2026 while the replacement HH-60W completes development.</p> <p>- Will support the mission planning upgrade for the HC-130J fleet.</p> <p>- Will collaborate with MAJCOM will continue to assess CSAR operational Mission Planning requirements for a highly contested environment.</p> <p>FY 2024 Base Plans:</p> <p>- Will develop Common applications on an open mission system will to promote survivability, affordability, and readiness for the users by being available in both contested and non-contested environment in multiple mediums.</p> <p>- Will continue the work in developing intelligence, surveillance and reconnaissance (ISR) application capabilities to support the conversion of the SMACC platforms to the Next Generation Open Mission System (NOMS) software.</p> <p>- Will develop software to address the requirements conveyed by the NOMS Solution Team in support of the enterprise roadmap to maximize efficiency.</p> <p>- Will begin development on the E-7 mission planning software, the aircraft replacing the legacy AWACS E-3/ E-8.</p> <p>FY 2023 to FY 2024 Increase/Decrease Statement: Slight increase due to inflation.</p> | | | | | |
| <p>Title: MPS Core Mission Planning (CMP)</p> <p>Description: MPS Core Mission Planning, is the set of Mission Planning services that all platforms and common capabilities utilize on an open system software architecture. It provides the core services utilized by both MAF and CAF platforms to include transit route planning, weather services and airfield data. MPS CMP includes the infrastructure and interfaces required to be integrated into the various platforms and weapons systems as well as addresses data access, services, integrity and real-time operational communication.</p> <p>FY 2023 Plans:</p> | 22.838 | 35.495 | 32.273 | - | 32.273 |

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B. Accomplishments/Planned Programs (\$ in Millions)

| | FY 2022 | FY 2023 | FY 2024 Base | FY 2024 OCO | FY 2024 Total |
|---|----------------|----------------|---------------------|--------------------|----------------------|
| - Will increase CMP development and deployment of services, modernizing from legacy development to micro-services in an Open Mission System/ Service Oriented Architecture environment and improving quality, security, and automation of data supplied to mission planning systems - reducing dependency on legacy functions - Will identify DAF Data Fabric Solution path to ensure interoperable data across the services. Deployments will include additional capability releases of route planning functionality, for 4th and 5th generation platforms providing multi-ship planning to accommodate collaborative planning functionality. | | | | | |
| <i>FY 2024 Base Plans:</i> - Will deploy the majority of open mission system/service oriented architecture environment of micro-services to the user community with continue development of microservices. - Will continue development of cloud based services including a mobile environment with development of C2 links and real time readiness reporting tools for aircraft user supporting in-flight dynamic mission re-planning. - Will explore and demonstrate enablers for dynamic mission replanning to support Agile Combat Employment in a disconnected and contested environment. | | | | | |
| <i>FY 2023 to FY 2024 Increase/Decrease Statement:</i> Minor decrease due to last year of the contract. | | | | | |
| Accomplishments/Planned Programs Subtotals | 91.091 | 96.843 | 94.265 | - | 94.265 |

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

| <u>Line Item</u> | <u>FY 2022</u> | <u>FY 2023</u> | <u>FY 2024 Base</u> | <u>FY 2024 OCO</u> | <u>FY 2024 Total</u> | <u>FY 2025</u> | <u>FY 2026</u> | <u>FY 2027</u> | <u>FY 2028</u> | <u>Cost To Complete</u> | <u>Total Cost</u> |
|--|----------------|----------------|---------------------|--------------------|----------------------|----------------|----------------|----------------|----------------|-------------------------|-------------------|
| • OPAF 03 Line Item 833170: <i>Mission Planning Systems</i> | 13.903 | 13.947 | 17.078 | - | 17.078 | 18.463 | 18.851 | 19.511 | 19.926 | 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. Air Force Life Cycle Management Center at Hanscom AFB (AFLCMC/HB) Mission Planning utilizes established Government Wide Acquisition Contract (GWAC) ID/IQ schedules, with a larger pool of vendors, to competitively award Task Orders. These vehicles are utilized for the development and fielding of software.

Program Support Costs (PSC) 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: PB 2024 Air Force | | Date: March 2023 |
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The Systems Engineering & Integration Contract (SEIC) is a competitively awarded single award ID/IQ. 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 the program management, contracts, legal, and financial management support.

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Exhibit R-3, RDT&E Project Cost Analysis: PB 2024 Air Force **Date:** March 2023

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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) 675380 / <i>Mission Planning Systems (MPS) Modernization</i> |
|--|---|--|

| Product Development (\$ in Millions) | | | | FY 2022 | | FY 2023 | | FY 2024 Base | | FY 2024 OCO | | FY 2024 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 | C/Various | Various : Various | 0.000 | 26.326 | Nov 2021 | 27.767 | Nov 2022 | 23.423 | Nov 2023 | - | | 23.423 | Continuing | Continuing | - |
| EC-130H Modernization | PO | Organic : Robins AFB, GA | 0.000 | 0.702 | Jan 2022 | 0.902 | Jan 2023 | 0.929 | Jan 2024 | - | | 0.929 | Continuing | Continuing | - |
| SMACC CSAR Tools | MIPR | Various : Various | 0.000 | 0.544 | Jan 2022 | 0.560 | Jan 2023 | 0.581 | Jan 2024 | - | | 0.581 | Continuing | Continuing | - |
| Digital Flight Scheduling (PUCKBOARD) | C/T&M | RevaComm : Honolulu, HI | 0.000 | 3.500 | May 2022 | - | | - | | - | | - | 0.000 | 3.500 | - |
| Systems Engineering and Integration | C/T&M | Leidos, Inc. : Reston, VA | 0.000 | 13.262 | Jan 2022 | 16.558 | Jan 2023 | 16.785 | Jan 2024 | - | | 16.785 | Continuing | Continuing | - |
| Framework | C/T&M | Northrop Grumman : Herndon, VA | 0.000 | 21.533 | Jan 2022 | 31.962 | Jan 2023 | 33.079 | Jan 2024 | - | | 33.079 | Continuing | Continuing | - |
| Common Components | C/Various | Various : Various | 0.000 | 14.396 | Nov 2021 | 7.883 | Nov 2022 | 8.120 | Nov 2023 | - | | 8.120 | Continuing | Continuing | - |
| Subtotal | | | 0.000 | 80.263 | | 85.632 | | 82.917 | | - | | 82.917 | Continuing | Continuing | N/A |

| Support (\$ in Millions) | | | | FY 2022 | | FY 2023 | | FY 2024 Base | | FY 2024 OCO | | FY 2024 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 | - | | - | | - | | - | | - | 0.000 | 0.000 | 0.080 |
| Cost Estimating | C/T&M | Tecolote Inc : Goleta, CA | 0.000 | 0.164 | Nov 2021 | 0.184 | Nov 2022 | 0.202 | Nov 2023 | - | | 0.202 | Continuing | Continuing | - |
| Subtotal | | | 0.000 | 0.164 | | 0.184 | | 0.202 | | - | | 0.202 | Continuing | Continuing | N/A |

| Test and Evaluation (\$ in Millions) | | | | FY 2022 | | FY 2023 | | FY 2024 Base | | FY 2024 OCO | | FY 2024 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 | 96CTG : Eglin AFB, FL | 0.000 | 4.943 | Dec 2021 | 5.702 | Dec 2022 | 5.698 | Dec 2023 | - | | 5.698 | Continuing | Continuing | - |
| Certification and Accreditation | MIPR | JITC : Fort Huachuca, AZ | 0.000 | 0.094 | Feb 2022 | 0.050 | Feb 2023 | 0.050 | Feb 2024 | - | | 0.050 | Continuing | Continuing | - |

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| Exhibit R-4A, RDT&E Schedule Details: PB 2024 Air Force | | Date: March 2023 |
| 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 by Sub Project | Start | | End | |
|---|---------|------|---------|------|
| | Quarter | Year | Quarter | Year |
| <i>Mission Planning Systems (MPS) Modernization</i> | | | | |
| F-15 v6.1 Fielding | 1 | 2022 | 2 | 2023 |
| F-22 v14.3 Fielding | 2 | 2023 | 2 | 2023 |
| B-1 Release 11.2 Fielding | 2 | 2022 | 2 | 2022 |
| B-1 Release 12.0.100 Fielding | 3 | 2022 | 3 | 2022 |
| B-1 Release 12.0.200 Fielding | 1 | 2023 | 1 | 2023 |
| CAF Modernization Continued Integration, Test, and Fielding | 1 | 2022 | 4 | 2026 |
| MAF Modernization (to include AGM) continued Integration, Test, and Fielding (on quarterly release cadence) | 1 | 2022 | 4 | 2026 |
| SMACC (E-8, E-3 and CSAR-Pedro King(HH-60G/HC-130J)) Releases | 1 | 2022 | 4 | 2026 |
| MPS Core Mission Planning Agile Development, Integration, Test & Release | 1 | 2022 | 4 | 2026 |
| GMSM: RC-135, E-3 and EC-130 Image Load Test (MVP)GMSM: RC-135, E-3 and EC-130 Image Load Test (MVP) | 2 | 2024 | 4 | 2024 |
| GMSM: RC-1135, E-3, E-8 Minimal Viable Capability Release (MVCR) | 4 | 2024 | 2 | 2025 |
| GMSM: C-17 Minimal Viable Capability Release (MVCR) | 2 | 2024 | 4 | 2024 |