Exhibit R-2, RDT&E Budget Item Justification: PB 2017 Army											Date: February 2016	
Appropriation/Budget Activity 2040: *Research, Development, Test & Evaluation, Army I* BA 5: *System Development & Demonstration (SDD)*					R-1 Program Element (Number/Name) PE 0604201A *I Aircraft Avionics*							
COST ($ in Millions)	**Prior Years**	**FY 2015**	**FY 2016**	**FY 2017 Base**	**FY 2017 OCO**	**FY 2017 Total**	**FY 2018**	**FY 2019**	**FY 2020**	**FY 2021**	**Cost To Complete**	**Total Cost**
Total Program Element	-	39.583	18.639	83.248	-	83.248	90.386	61.627	7.480	14.292	Continuing	Continuing
C97: *ACFT Avionics*	-	5.372	1.858	0.798	-	0.798	5.849	5.864	5.942	5.645	Continuing	Continuing
VU3: *Networking And Mission Planning*	-	34.211	16.781	82.450	-	82.450	84.537	55.763	1.538	8.647	Continuing	Continuing

A. Mission Description and Budget Item Justification

The Fiscal Year (FY) 2017 budget request funds the development of Aircraft Avionics systems required to horizontally and vertically integrate the battlefield and the integration of those systems into Army aircraft. Tasks in this Program Element support research, development, and test efforts in the Engineering and Manufacturing Development phases of these systems.

The Airborne Maritime Fixed-Aviation (AMF-A) is the transformational system that provides Army Aviation interoperability capability for Future Force and Joint Force operations. The AMF-A integration effort provides for the non-recurring engineering required to integrate and qualify the AMF-A certified radios with Link 16 and/or other advanced networking waveforms into the Apache AH-64E and Unmanned Aircraft Systems (UAS). Specifically, the PRC-152A radio will be incorporated into the Shadow UAS Communications Relay Payload mission equipment package.

The Doppler Global Positioning System Navigation Set (DGNS) Upgrade program completes system engineering trade studies to reduce space, weight, and power with the introduction of new navigation support capabilities such as inertial sensor, MIL-STD-1553 interface card, and Instrument Flight Rules map display. It also prepares Engineering Change Proposals (ECP) to the existing DGNS ASN-128D Line Replaceable Units (LRU) as a result of those trade studies. The effort also derives DGNS compliance matrices for current and planned Global Air Traffic Management (GATM) capabilities for the upcoming decade. The DGNS upgrade continues with execution of Non-Recurring Engineering for Computer Display Unit (CDU) and Signal Data Converter LRU ECP packages. The ASN-128D CDU upgrade replaces the current CDU faceplate with a touch screen display, provides a moving navigation map capability and optimizes pilot interface to augment existing Instrument Flight Rules capability promoting safer flight operations. The CDU upgrade will support Assured-Position Navigation and Time (A-PNT) operations in conjunction with additional system LRU upgrades and supports Department of Defense (DoD) and Army's requirement to maintain A-PNT throughout operations. This will require assessment and follow-on upgrade to the DGNS navigation system. The CDU upgrade will perform an assessment of A-PNT assurance levels to understand system performance, associated PNT capability gaps, and evaluate candidate solutions to cover any identified gaps.

The Enhanced Aviation GATM Localizer Performance with Vertical Guidance (LPV) Embedded GPS Inertial (EGI) Navigation System (EAGLE) A-PNT integration program assesses current capabilities in identified operational PNT environment levels and tests identified upgrades to existing EGI hardware in order to accommodate A-PNT in identified operational environments and incorporates M-Code. It supports DoD and Army's requirement to maintain A-PNT throughout operations and requires assessment and follow-on upgrade to the EGI navigation system. The EAGLE upgrade will perform an assessment of A-PNT assurance levels to understand system performance, associated PNT capability gaps, and evaluate candidate solutions to cover any identified gaps.

Exhibit R-2, RDT&E Budget Item Justification: PB 2017 Army	Date: February 2016
Appropriation/Budget Activity 2040: *Research, Development, Test & Evaluation, Army I* BA 5: *System Development & Demonstration (SDD)*	**R-1 Program Element (Number/Name)** PE 0604201A *I Aircraft Avionics*

The Brownout Rotorcraft Enhancement System (BORES) addresses tactical operations and training missions within Degraded Visual Environments (DVE) which restricts or severely reduces the aircrew's visibility due to atmospheric obscurants. BORES will initiate the use of DVE as a tactical advantage for Army Aviation. In addition, BORES will improve safety, reduce risk and add flexibility to aviation units by enhancing aircrew situational awareness through real-time detection and warning of terrain, obstacles and hazards. BORES will consist of integrated rotorcraft pilotage augmentation systems, sensor(s), software, software related fireware, and pilot to system interfaces and cueing devices. BORES will combine obscurant penetrating sensor(s) with aircraft state data via a fusion/synthetic vision system to provide an initial capability for ground taxi, hover, takeoff and landing modes of flight during brownout conditions.

The Aviation Data Exploitation Capability (ADEC) is an Army aviation automated information system program providing specific capabilities needed at the aviation unit level to implement and support improvements within aviation operations, safety, and training to increase operational effectiveness and situational awareness at all command echelons. ADEC provides a common and interoperable capability required to implement the DoD mandated Military Flight Operations Quality Assurance processes. ADEC will standardize flight scheduling/management, risk management, mission approval, and flight data analysis and visualization. ADEC provides interfaces to Centralized Aviation Flight Records System (CAFRS) to reduce data entry and the information technology footprint while enabling disconnected and split based operations.

The Aircraft Notebook (ACN) is an Army aviation automated information system program required to streamline the completion of aviation maintenance activities and the documentation required to maintain airworthiness for all Army aircraft. ACN implements The Army Maintenance Management System - Aviation (TAMMS-A) digital logbook functionality and integrates with CAFRS to reduce manual entries and increase data accuracy. ACN reduces the information technology footprint within an aviation unit by integrating multiple software applications such as platform software applications, interactive electronic technical manuals, and condition based maintenance plus tools onto one hardware platform.

The Aviation Logistics Enterprise - Platform (ALE-P) is the single logistics information system for all of Army aviation and serves as an extension to Global Combat Support System-Army (GCSS-Army). ALE-P replaces the Unit Level Logistics System-Aviation (Enhanced) (ULLS-A[E]) and the Unmanned Aviation Systems-Initiative (UAS-I) systems. ALE-P provides necessary interfaces to GCSS-Army and other enterprise systems at Logistics Support Activity, Aviation and Missile Command, and Program Executive Office Aviation. ALE-P interfaces with the ACN and ADEC at the unit level to maintain continuous airworthiness and aircraft historical records and provides the maintenance/readiness posture to the commander.

Exhibit R-2, RDT&E Budget Item Justification: PB 2017 Army					Date: February 2016
Appropriation/Budget Activity 2040: *Research, Development, Test & Evaluation, Army I* BA 5: *System Development & Demonstration (SDD)*		R-1 Program Element (Number/Name) PE 0604201A *I Aircraft Avionics*			
B. Program Change Summary ($ in Millions)	**FY 2015**	**FY 2016**	**FY 2017 Base**	**FY 2017 OCO**	**FY 2017 Total**
Previous President's Budget	41.236	12.939	2.210	-	2.210
Current President's Budget	39.583	18.639	83.248	-	83.248
Total Adjustments	-1.653	5.700	81.038	-	81.038
• Congressional General Reductions	-	-9.300			
• Congressional Directed Reductions	-	-			
• Congressional Rescissions	-	-			
• Congressional Adds	-	15.000			
• Congressional Directed Transfers	-	-			
• Reprogrammings	-	-			
• SBIR/STTR Transfer	-1.653	-			
• Adjustments to Budget Years	-	-	81.038	-	81.038

Change Summary Explanation

FY16: $15,000K Congressional increase for DVE
-$9,300K Army requested transfer of ALE-P funding to Global Combat Support System
FY17: $81,038K Increase for BORES/DVE development

Exhibit R-2A, RDT&E Project Justification: PB 2017 Army			Date: February 2016
Appropriation/Budget Activity 2040 / 5	R-1 Program Element (Number/Name) PE 0604201A / *Aircraft Avionics*	Project (Number/Name) C97 / *ACFT Avionics*	

COST ($ in Millions)	Prior Years	FY 2015	FY 2016	FY 2017 Base	FY 2017 OCO	FY 2017 Total	FY 2018	FY 2019	FY 2020	FY 2021	Cost To Complete	Total Cost
C97: *ACFT Avionics*	-	5.372	1.858	0.798	-	0.798	5.849	5.864	5.942	5.645	Continuing	Continuing
Quantity of RDT&E Articles	-	-	-	-	-	-	-	-	-	-		

A. Mission Description and Budget Item Justification

The Fiscal Year (FY) 2017 budget request funds the development of Aircraft Avionics systems required to horizontally and vertically integrate the battlefield and the integration of those systems into Army aircraft. Tasks in this Project support research, development, and test efforts in the Engineering and Manufacturing Development phases of these systems.

The Airborne Maritime Fixed-Aviation (AMF-A) is the transformational system that provides Army Aviation interoperability capability for Future Force and Joint Force operations. The AMF-A integration effort provides for the non-recurring engineering required to integrate and qualify the AMF-A certified radios with Link 16 and/or other advanced networking waveforms into the Apache AH-64E and Unmanned Aircraft Systems (UAS). Specifically, the PRC-152A radio will be incorporated into the Shadow UAS Communications Relay Payload mission equipment package.

The Doppler Global Positioning System Navigation Set (DGNS) Upgrade program completes system engineering trade studies to reduce space, weight, and power with the introduction of new navigation support capabilities such as inertial sensor, MIL-STD-1553 interface card, and Instrument Flight Rules map display. It also prepares Engineering Change Proposals (ECP) to the existing DGNS ASN-128D Line Replaceable Units (LRU) as a result of those trade studies. The effort also derives DGNS compliance matrices for current and planned Global Air Traffic Management (GATM) capabilities for the upcoming decade. The DGNS upgrade continues with execution of Non-Recurring Engineering for Computer Display Unit (CDU) and Signal Data Converter LRU ECP packages. The ASN-128D CDU upgrade replaces the current CDU faceplate with a touch screen display, provides a moving navigation map capability and optimizes pilot interface to augment existing Instrument Flight Rules capability promoting safer flight operations. The CDU upgrade will support Assured-Position Navigation and Time (A-PNT) operations in conjunction with additional system LRU upgrades and supports Department of Defense (DoD) and Army's requirement to maintain A-PNT throughout operations. This will require assessment and follow-on upgrade to the DGNS navigation system. The CDU upgrade will perform an assessment of A-PNT assurance levels to understand system performance, associated PNT capability gaps, and evaluate candidate solutions to cover any identified gaps.

The Enhanced Aviation GATM Localizer Performance with Vertical Guidance (LPV) Embedded Global Positioning System (GPS) Inertial (EGI) Navigation System (EAGLE) A-PNT integration program assesses current capabilities in identified operational PNT environment levels and tests identified upgrades to existing EGI hardware to accommodate A-PNT in identified operational environments and incorporates M-Code. It supports DoD and Army's requirement to maintain A-PNT throughout operations and requires assessment and follow-on upgrade to the EGI navigation system. The EAGLE upgrade will perform an assessment of A-PNT assurance levels to understand system performance, associated PNT capability gaps, and evaluate candidate solutions to cover any identified gaps.

B. Accomplishments/Planned Programs ($ in Millions)	FY 2015	FY 2016	FY 2017
Title: Airborne Maritime Fixed (AMF-A) integration and qualification for Apache AH-64E and PRC-152A Radio for UAS platforms.	1.994	1.858	0.050

Exhibit R-2A, RDT&E Project Justification: PB 2017 Army		Date: February 2016
Appropriation/Budget Activity 2040 / 5	**R-1 Program Element (Number/Name)** PE 0604201A / *Aircraft Avionics*	**Project (Number/Name)** C97 / *ACFT Avionics*

B. Accomplishments/Planned Programs ($ in Millions)	FY 2015	FY 2016	FY 2017
Description: The AMF-A integration effort provides for the non-recurring engineering required to integrate and qualify the PRC-152A compliant radios and/or other advanced networking waveforms into the Apache AH-64E and UAS platforms for both production cut-in and retrofit activities. ***FY 2015 Accomplishments:*** Developed a catalogue of qualified airborne AMF-A antennas for use on multiple platforms. Supported multiple SALT and SANR working groups. ***FY 2016 Plans:*** Continue development of AMF-A antennas and associated Co-Site Analysis tasks. ***FY 2017 Plans:*** Complete catalogue development of AMF-A antennas and associated Co-Site Analysis tasks.			
Title: Doppler Global Positioning System Navigation Set (DGNS) Upgrade/Assured-Position Navigation and Time (A-PNT) Assessment ***Description:*** The DGNS Upgrade program completes system engineering trade studies to reduce space, weight, and power with the introduction of new navigation support capabilities such as inertial sensor, MIL-STD-1553 interface card, and Instrument Flight Rules (IFR) map display. It also prepares ECPs to the existing DGNS ASN-128D LRU as a result of those trade studies. The effort also derives DGNS compliance matrices for current and planned GATM capabilities for the upcoming decade. The DGNS upgrade continues with execution of Non-Recurring Engineering for CDU and Signal Data Converter LRU ECP packages. The ASN-128D CDU Upgrade replaces the current CDU faceplate with a touch screen display, provides a moving navigation map capability and optimized pilot interface to augment existing IFR capability and promote safer flight operations. It also enables CDU support for A-PNT operations in conjunction with additional system LRU upgrades. ***FY 2015 Accomplishments:*** Continued CDU Upgrade non-recurring engineering effort with software implementation, hardware fabrication, DGNS system integration, and full airworthiness component level qualification testing. ***FY 2017 Plans:*** Complete assessments and feasibility studies performed on the CDU Upgrade equipment to identify hardware and software changes required to meet A-PNT requirements.	3.378	-	0.200
Title: Enhanced Aviation GATM Localizer Performance with Vertical Guidance (LPV) Embedded GPS Inertial (EGI) Navigation System (EAGLE)	-	-	0.548

Exhibit R-2A, RDT&E Project Justification: PB 2017 Army		Date: February 2016
Appropriation/Budget Activity 2040 / 5	**R-1 Program Element (Number/Name)** PE 0604201A / *Aircraft Avionics*	**Project (Number/Name)** C97 / *ACFT Avionics*

B. Accomplishments/Planned Programs ($ in Millions)	FY 2015	FY 2016	FY 2017
Description: The EAGLE Navigation System A-PNT integration program assesses current capabilities in identified operational PNT environment levels and tests identified upgrades to existing EGI hardware to accommodate A-PNT in identified operational environments. ***FY 2017 Plans:*** Initiate assessments and feasibility studies on the current EGI and EAGLE equipment to identify hardware and software changes required to meet A-PNT requirements and to incorporate M-Code.			
Accomplishments/Planned Programs Subtotals	5.372	1.858	0.798

C. Other Program Funding Summary ($ in Millions)

Line Item	FY 2015	FY 2016	FY 2017 Base	FY 2017 OCO	FY 2017 Total	FY 2018	FY 2019	FY 2020	FY 2021	Cost To Complete	Total Cost
• AA0723: *COMMS, NAV Surveillance*	115.795	82.904	69.960	-	69.960	94.516	85.628	77.985	72.766	Continuing	Continuing
• AA0704: *GATM Rotary Wing*	41.821	33.890	45.302	-	45.302	60.647	29.808	30.131	18.920	Continuing	Continuing

Remarks

D. Acquisition Strategy

This project is comprised of multiple systems supporting aircraft avionics. While the detailed acquisition strategy varies from program to program, the general strategy is for each individual program to complete the development and testing efforts in coordination with the aircraft platforms on integration issues, use the various contracts of the aircraft platforms original equipment manufacturers on integration efforts, and utilize the Aviation & Missile Research, Development, and Engineering Center for software development. This requires the use of various contract methods and types to accomplish the aircraft avionics development efforts. All required acquisition program documentation is prepared.

E. Performance Metrics

N/A

Exhibit R-3, RDT&E Project Cost Analysis: PB 2017 Army			Date: February 2016
Appropriation/Budget Activity 2040 / 5	R-1 Program Element (Number/Name) PE 0604201A / *Aircraft Avionics*	Project (Number/Name) C97 / *ACFT Avionics*	

Management Services ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2015 Cost	FY 2015 Award Date	FY 2016 Cost	FY 2016 Award Date	FY 2017 Base Cost	FY 2017 Base Award Date	FY 2017 OCO Cost	FY 2017 OCO Award Date	FY 2017 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
PM Services (EAGLE)	Allot	PM AME : Redstone Arsenal, AL	0.000	-		-		0.200	Oct 2016	-		0.200	Continuing	Continuing	Continuing
PM Services (DGNS Upgrade/ DGNS A-PNT)	Allot	PM AME : Redstone Arsenal, AL	0.000	0.063	Oct 2014	-		-		-		-	0	0.063	0
PM Services (AMF-A)	Allot	PM AME : Redstone Arsenal, AL	1.222	0.641	Oct 2014	0.676	Oct 2015	-		-		-	0	2.539	0
		Subtotal	1.222	0.704		0.676		0.200		-		0.200	-	-	-

Product Development ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2015 Cost	FY 2015 Award Date	FY 2016 Cost	FY 2016 Award Date	FY 2017 Base Cost	FY 2017 Base Award Date	FY 2017 OCO Cost	FY 2017 OCO Award Date	FY 2017 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
AMF-A Common Radio Control Software Development	Various	AMRDEC Software Engineering Directorate : Redstone Arsenal, AL	8.265	-		-		-		-		-	0	8.265	8.265
AMF-A Antenna Development and Co-Site Analysis	Various	AMRDEC, Prototype Integration Facility/ CERDEC Flight Activity : Redstone Arsenal, AL/ Lakehurst, NJ	4.084	0.050	Mar 2015	1.182	Mar 2016	0.050	Mar 2017	-		0.050	0	5.366	0
PRC-152A Radio Shadow Communication Relay Package	C/FFP	AMS : Huntsville, AL	5.245	-		-		-		-		-	0	5.245	9.958
DGNS Upgrade	C/CPFF	BAE Systems : Wayne, NJ	30.640	3.315	Mar 2015	-		-		-		-	0	33.955	0
DGNS A-PNT Assessment	SS/CPFF	BAE Systems : Wayne, NJ	0.000	-		-		0.200	Feb 2017	-		0.200	0	0.200	0
AMF-A Link-16 and Wide Band Networking Waveform Integration and Qualification onto AH-64E	SS/CPFF	Boeing : Mesa, AZ	29.989	-		-		-		-		-	0	29.989	0

Exhibit R-3, RDT&E Project Cost Analysis: PB 2017 Army			Date: February 2016
Appropriation/Budget Activity 2040 / 5	R-1 Program Element (Number/Name) PE 0604201A / *Aircraft Avionics*	Project (Number/Name) C97 / *ACFT Avionics*	

Product Development ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2015 Cost	FY 2015 Award Date	FY 2016 Cost	FY 2016 Award Date	FY 2017 Base Cost	FY 2017 Base Award Date	FY 2017 OCO Cost	FY 2017 OCO Award Date	FY 2017 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
EAGLE A-PNT Assessment	SS/CPFF	Honeywell : Clearwater, FL	0.000	-		-		0.348	Feb 2017	-		0.348	Continuing	Continuing	Continuing
		Subtotal	78.223	3.365		1.182		0.598		-		0.598	-	-	-

Support ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2015 Cost	FY 2015 Award Date	FY 2016 Cost	FY 2016 Award Date	FY 2017 Base Cost	FY 2017 Base Award Date	FY 2017 OCO Cost	FY 2017 OCO Award Date	FY 2017 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
PEO AVN Support (AMF-A)	MIPR	PEO AVN : Redstone Arsenal, AL	0.000	1.303	Dec 2015	-		-		-		-	0	1.303	0
		Subtotal	0.000	1.303		-		-		-		-	0.000	1.303	0.000

	Prior Years	FY 2015 Cost	FY 2015 Award Date	FY 2016 Cost	FY 2016 Award Date	FY 2017 Base Cost	FY 2017 Base Award Date	FY 2017 OCO Cost	FY 2017 OCO Award Date	FY 2017 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Project Cost Totals	79.445	5.372		1.858		0.798		-		0.798	-	-	-

Remarks

Exhibit R-4, RDT&E Schedule Profile: PB 2017 Army		Date: February 2016
Appropriation/Budget Activity 2040 / 5	**R-1 Program Element (Number/Name)** PE 0604201A / *Aircraft Avionics*	**Project (Number/Name)** C97 / *ACFT Avionics*

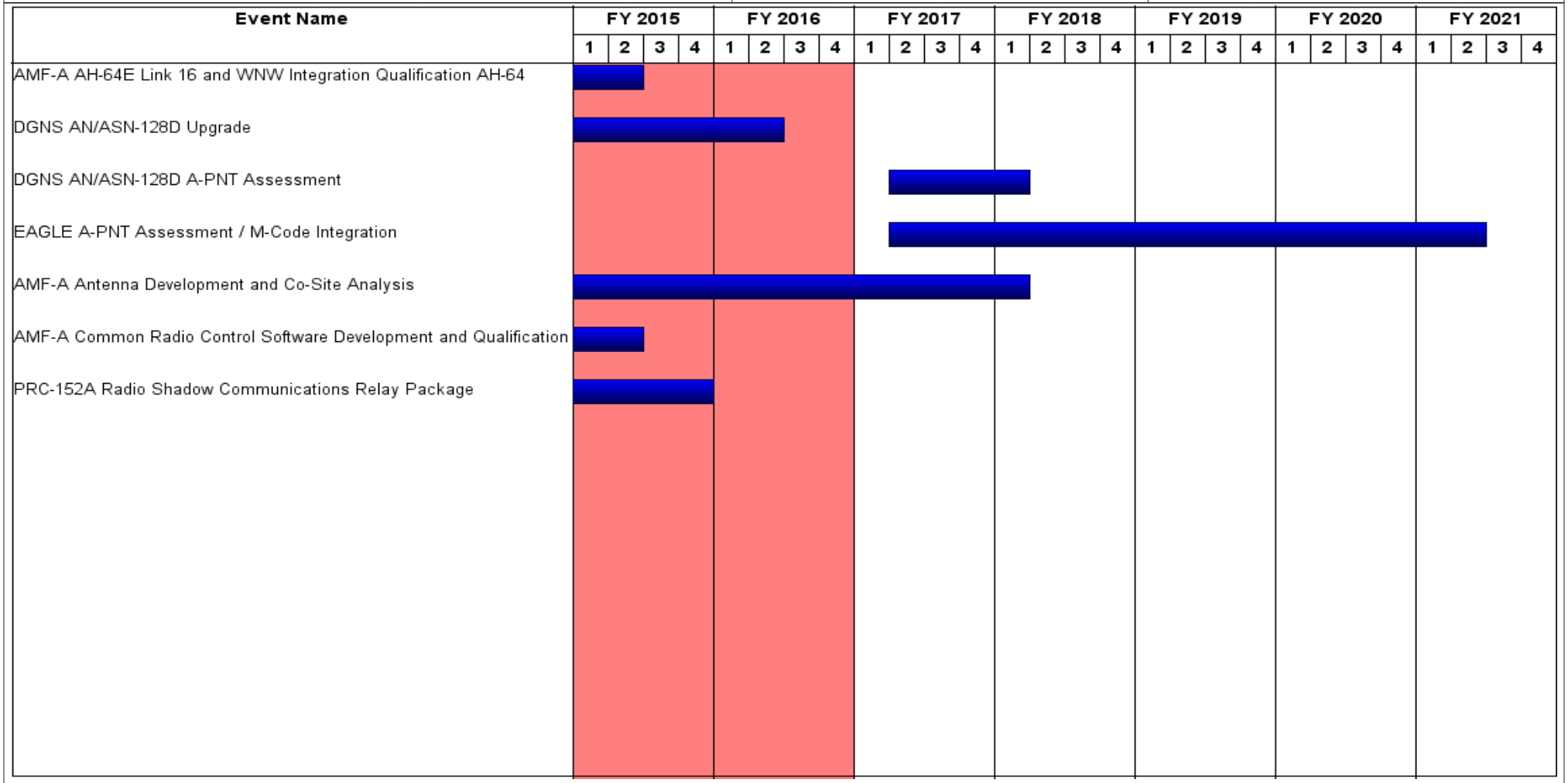

Exhibit R-4A, RDT&E Schedule Details: PB 2017 Army		Date: February 2016
Appropriation/Budget Activity 2040 / 5	**R-1 Program Element (Number/Name)** PE 0604201A / *Aircraft Avionics*	**Project (Number/Name)** C97 / *ACFT Avionics*

Schedule Details

	Start		End	
Events	**Quarter**	**Year**	**Quarter**	**Year**
AMF-A AH-64E Link 16 and WNW Integration Qualification AH-64	1	2015	2	2015
DGNS AN/ASN-128D Upgrade	4	2014	2	2016
DGNS AN/ASN-128D A-PNT Assessment	2	2017	1	2018
EAGLE A-PNT Assessment / M-Code Integration	2	2017	2	2021
AMF-A Antenna Development and Co-Site Analysis	2	2011	1	2018
AMF-A Common Radio Control Software Development and Qualification	1	2011	2	2015
PRC-152A Radio Shadow Communications Relay Package	1	2012	4	2015

Exhibit R-2A, RDT&E Project Justification: PB 2017 Army			Date: February 2016
Appropriation/Budget Activity 2040 / 5	R-1 Program Element (Number/Name) PE 0604201A / *Aircraft Avionics*	Project (Number/Name) VU3 / *Networking And Mission Planning*	

COST ($ in Millions)	Prior Years	FY 2015	FY 2016	FY 2017 Base	FY 2017 OCO	FY 2017 Total	FY 2018	FY 2019	FY 2020	FY 2021	Cost To Complete	Total Cost
VU3: *Networking And Mission Planning*	-	34.211	16.781	82.450	-	82.450	84.537	55.763	1.538	8.647	Continuing	Continuing
Quantity of RDT&E Articles	-	-	-	-	-	-	-	-	-	-		

Note

The Aviation Logistics Enterprise-Platform (ALE-P) requirement has been transferred to Program Manager Army Enterprise Systems Integration Program (PM AESIP) Global Combat Support System (GCSS) Army effective Fiscal Year (FY) 2016.

A. Mission Description and Budget Item Justification

The Fiscal Year (FY) 2017 budget request funds the development of Networking and Mission Planning systems required to horizontally and vertically integrate the battlefield and the integration of those systems into Army aircraft. Tasks in this Project support research, development, and test efforts in the Engineering and Manufacturing Development (EMD) phases of these systems.

The Brownout Rotorcraft Enhancement System (BORES) addresses tactical operations and training missions within Degraded Visual Environment (DVE) which restricts or severely reduces the aircrew's visibility due to atmospheric obscurants. BORES will initiate the use of DVE as a tactical advantage for Army Aviation. In addition, BORES will improve safety, reduce risk and add flexibility to aviation units by enhancing aircrew situational awareness through real-time detection and warning of terrain, obstacles and hazards. BORES will consist of integrated rotorcraft pilotage augmentation systems, sensor(s), software, software related firmware, and pilot to system interfaces and cueing devices. BORES will combine obscurant penetrating sensor(s) with aircraft state data via a fusion/synthetic vision system to provide an initial capability for ground taxi, hover, takeoff and landing modes of flight during brownout conditions.

The Aviation Data Exploitation Capability (ADEC) is an Army aviation automated information system program providing specific capabilities needed at the aviation unit level to implement and support improvements within aviation operations, safety, and training to increase operational effectiveness and situational awareness at all command echelons. ADEC provides a common and interoperable capability required to implement the DoD mandated Military Flight Operations Quality Assurance processes. ADEC will standardize flight scheduling/management, risk management, mission approval, and flight data analysis and visualization. ADEC provides interfaces to Centralized Aviation Flight Records System (CAFRS) to reduce data entry and the information technology footprint while enabling disconnected and split based operations.

The Aircraft Notebook (ACN) is an Army aviation automated information system program required to streamline the completion of aviation maintenance activities and the documentation required to maintain airworthiness for all Army aircraft. ACN implements The Army Maintenance Management System - Aviation (TAMMS-A) digital logbook functionality and integrates with CAFRS to reduce manual entries and increase data accuracy. ACN reduces the information technology footprint within an aviation unit by integrating multiple software applications such as platform software applications, interactive electronic technical manuals, and condition based maintenance plus tools onto one hardware platform.

Exhibit R-2A, RDT&E Project Justification: PB 2017 Army		Date: February 2016
Appropriation/Budget Activity 2040 / 5	**R-1 Program Element (Number/Name)** PE 0604201A / *Aircraft Avionics*	**Project (Number/Name)** VU3 / *Networking And Mission Planning*

The Aviation Logistics Enterprise-Platform (ALE-P) is the single logistics information system for all of Army aviation and serves as an extension to GCSS Army. ALE-P replaces the Unit Level Logistics System-Aviation (Enhanced) (ULLS-A[E]) and the Unmanned Aviation Systems-Initiative (UAS-I) systems. ALE-P provides necessary interfaces to GCSS-Army and other enterprise systems at Logistics Support Activity (LOGSA), Aviation and Missile Command (AMCOM), and Program Executive Office (PEO) Aviation. ALE-P interfaces with the ACN and ADEC at the unit level to maintain continuous airworthiness and aircraft historical records and provides the maintenance/readiness posture to the commander.

B. Accomplishments/Planned Programs ($ in Millions)	FY 2015	FY 2016	FY 2017
Title: Brownout Rotorcraft System (BORES)/Degraded Visual Environment (DVE)	20.000	15.000	80.541
Description: The BORES addresses tactical operations and training missions within DVE which restricts or severely reduces the aircrew's visibility due to atmospheric obscurants. BORES will initiate the use of DVE as a tactical advantage for Army Aviation. In addition, BORES will improve safety, reduce risk and add flexibility to aviation units by enhancing aircrew situational awareness through real-time detection and warning of terrain, obstacles and hazards. BORES will consist of integrated rotorcraft pilotage augmentation systems, sensor(s), software, software related firmware, and pilot to system interfaces and cueing devices. BORES will combine obscurant penetrating sensor(s) with aircraft state data via a fusion/synthetic vision system to provide an initial capability for ground taxi, hover, takeoff and landing modes of flight during brownout conditions. ***FY 2015 Accomplishments:*** Conducted technical design and development of DVE. ***FY 2016 Plans:*** Continue design and develop the initial technical system and sub-system specifications for the DVE/BORES. The DVE/BORES program will focus on the development of an Airworthiness Qualification Package, initiate identified aircraft trade studies with original equipment manufacturers, initiate program documentation, identify and begin modeling and simulation activities. Additionally, a Limited User Assessment will be conducted to inform the DVE/BORES program. ***FY 2017 Plans:*** Continue the design and develop the technical system and sub-system specifications for the DVE/BORES. The DVE/BORES program will identify airworthiness requirements for hardware and software, complete identified aircraft trade studies with original equipment manufacturers, continue the development of program documentation, and initiate modeling and simulation as risk reduction activities. Program efforts include the issuance of a contract request for proposal with subsequent source selection evaluation of proposals.			
Title: Aviation Data Exploitation Capability (ADEC)	8.950	1.781	1.909
Description: The ADEC is an Army aviation automated information system program providing specific capabilities needed at the aviation unit level to implement and support improvements within aviation operations, safety, and training to increase operational effectiveness and situational awareness at all command echelons. ADEC provides a common and interoperable capability required to implement the DoD mandated Military Flight Operations Quality Assurance processes. ADEC will standardize flight			

Exhibit R-2A, RDT&E Project Justification: PB 2017 Army		Date: February 2016
Appropriation/Budget Activity 2040 / 5	**R-1 Program Element (Number/Name)** PE 0604201A / *Aircraft Avionics*	**Project (Number/Name)** VU3 / *Networking And Mission Planning*

B. Accomplishments/Planned Programs ($ in Millions)	FY 2015	FY 2016	FY 2017
scheduling/management, risk management, mission approval, and flight data analysis and visualization. ADEC provides interfaces to CAFRS to reduce data entry and the information technology footprint while enabling disconnected and split based operations. ***FY 2015 Accomplishments:*** Initiated ADEC design, development, integration, and developmental and operational testing of the hardware and software version 1.0. Conducted ADEC design, development, and integration of software version 2.0. ***FY 2016 Plans:*** Continue ADEC design, development, integration, and developmental testing of software version 2.0. ***FY 2017 Plans:*** Complete ADEC development, integration, and developmental and operational testing of software version 2.0.			
Title: Aircraft Notebook (ACN) ***Description:*** The ACN is an Army aviation automated information system program required to streamline the completion of aviation maintenance activities and the documentation required to maintain airworthiness for all Army aircraft. ACN implements TAMMS-A digital logbook functionality and integrates with CAFRS to reduce manual entries and increase data accuracy. ACN reduces the information technology footprint within an aviation unit by integrating multiple software applications such as platform software applications, interactive electronic technical manuals, and condition based maintenance plus tools onto one hardware platform. ***FY 2015 Accomplishments:*** Performed development and integration of ACN hardware and software and Operational Test and Evaluation activities. Completed formal qualification software development testing and software user test.	5.261	-	-
Accomplishments/Planned Programs Subtotals	34.211	16.781	82.450

C. Other Program Funding Summary ($ in Millions)

Line Item	FY 2015	FY 2016	FY 2017 Base	FY 2017 OCO	FY 2017 Total	FY 2018	FY 2019	FY 2020	FY 2021	Cost To Complete	Total Cost
• AA0712: *Network and Mission Plan*	102.930	108.807	74.752	-	74.752	139.458	144.555	120.898	135.305	Continuing	Continuing
• AA0723: *Degraded Visual Environment*	-	-	-	-	-	-	-	56.082	59.171	Continuing	Continuing

Remarks

Exhibit R-2A, RDT&E Project Justification: PB 2017 Army		Date: February 2016
Appropriation/Budget Activity 2040 / 5	**R-1 Program Element (Number/Name)** PE 0604201A / *Aircraft Avionics*	**Project (Number/Name)** VU3 / *Networking And Mission Planning*

D. Acquisition Strategy

This project is comprised of multiple systems supporting aircraft avionics. While the detailed acquisition strategy varies from program to program, the general strategy is for each individual program to complete the development and testing efforts in coordination with the aircraft platforms on integration issues, use the various contracts of the aircraft platforms original equipment manufacturers on integration efforts, and utilize the Aviation & Missile Research, Development, and Engineering Center for software development. This requires the use of various contract methods and types to accomplish the aircraft avionics development efforts. All required acquisition program documentation is prepared.

E. Performance Metrics

N/A

Exhibit R-3, RDT&E Project Cost Analysis: PB 2017 Army			Date: February 2016
Appropriation/Budget Activity 2040 / 5	R-1 Program Element (Number/Name) PE 0604201A / *Aircraft Avionics*	Project (Number/Name) VU3 / *Networking And Mission Planning*	

Management Services ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2015 Cost	FY 2015 Award Date	FY 2016 Cost	FY 2016 Award Date	FY 2017 Base Cost	FY 2017 Base Award Date	FY 2017 OCO Cost	FY 2017 OCO Award Date	FY 2017 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
PM Support (ADEC)	Various	Program Manager Aviation Networks Mission Planning : Redstone Arsenal, AL	2.334	1.712	Jan 2015	-		-		-		-	0	4.046	0
PM Support (ACN)	Various	Program Manager Aviation Mission Networks Planning : Redstone Arsenal, AL	3.022	0.926	Feb 2015	-		-		-		-	0	3.948	0
PM Support (BORES/DVE)	Various	AMCOM : Redstone Arsenal, AL	2.196	0.800	Sep 2015	0.506	Sep 2016	3.649	Oct 2016	-		3.649	Continuing	Continuing	Continuing
		Subtotal	7.552	3.438		0.506		3.649		-		3.649	-	-	-

Product Development ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2015 Cost	FY 2015 Award Date	FY 2016 Cost	FY 2016 Award Date	FY 2017 Base Cost	FY 2017 Base Award Date	FY 2017 OCO Cost	FY 2017 OCO Award Date	FY 2017 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Qualify ADEC software and hardware	Various	Aviation Missile Research Development Engineering Center (AMRDEC) : Redstone Arsenal, AL	6.746	4.603	Jun 2015	1.781	Apr 2016	1.028	Apr 2017	-		1.028	0	14.158	0
Qualify ACN software and hardware	Various	Aviation Missile Research Engineering Center (AMRDEC) : Redstone Arsenal, AL	6.935	2.003	Dec 2015	-		-		-		-	0	8.938	0
Develop and qualify the software and hardware for BORES/DVE	C/Various	Various : Various	0.000	-		-		61.182	Mar 2017	-		61.182	Continuing	Continuing	Continuing
		Subtotal	13.681	6.606		1.781		62.210		-		62.210	-	-	-

Exhibit R-3, RDT&E Project Cost Analysis: PB 2017 Army			Date: February 2016
Appropriation/Budget Activity 2040 / 5	R-1 Program Element (Number/Name) PE 0604201A / *Aircraft Avionics*	Project (Number/Name) VU3 / *Networking And Mission Planning*	

Support ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2015 Cost	FY 2015 Award Date	FY 2016 Cost	FY 2016 Award Date	FY 2017 Base Cost	FY 2017 Base Award Date	FY 2017 OCO Cost	FY 2017 OCO Award Date	FY 2017 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
System Engineering, Logistics, and Technical Support (ADEC)	Various	Army Test & Evaluation (ATEC), Aberdeen, MD; AMRDEC : Redstone Arsenal, AL	0.635	0.558	Feb 2015	-		0.480	Apr 2016	-		0.480	0	1.673	0
System Engineering, Logistics, and Technical Support (ACN)	Various	Army Test & Evaluation (ATEC), Aberdeen, MD; AMRDEC : Redstone Arsenal, AL	0.335	0.831	Mar 2015	-		-		-		-	0	1.166	0
System Engineering, Logistics, and Technical Support (BORES/DVE)	Various	Various : Various	2.000	2.857	Sep 2015	6.911	Sep 2016	1.098	Sep 2017	-		1.098	Continuing	Continuing	Continuing
		Subtotal	2.970	4.246		6.911		1.578		-		1.578	-	-	-

Test and Evaluation ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2015 Cost	FY 2015 Award Date	FY 2016 Cost	FY 2016 Award Date	FY 2017 Base Cost	FY 2017 Base Award Date	FY 2017 OCO Cost	FY 2017 OCO Award Date	FY 2017 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
ADEC	Various	Army Test & Evaluation Command (ATEC), Aberdeen MD; AMRDEC : Redstone Arsenal, AL	1.880	2.077	Feb 2015	-		0.401	Apr 2016	-		0.401	0	4.358	0
ACN	Various	Army Test & Evaluation Command (ATEC), Aberdeen MD; AMRDEC : Redstone Arsenal, AL	3.423	1.501	Oct 2015	-		-		-		-	0	4.924	0
BORES/DVE	Various	Army Aviation & Missile Research Development & Engineering Center(AMRDEC) :	20.800	16.343	Sep 2015	7.583	Sep 2016	14.612	Sep 2017	-		14.612	Continuing	Continuing	Continuing

Exhibit R-3, RDT&E Project Cost Analysis: PB 2017 Army			Date: February 2016
Appropriation/Budget Activity 2040 / 5	R-1 Program Element (Number/Name) PE 0604201A / *Aircraft Avionics*	Project (Number/Name) VU3 / *Networking And Mission Planning*	

Test and Evaluation ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2015 Cost	FY 2015 Award Date	FY 2016 Cost	FY 2016 Award Date	FY 2017 Base Cost	FY 2017 Base Award Date	FY 2017 OCO Cost	FY 2017 OCO Award Date	FY 2017 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
		Redstone Arsenal, AL													
		Subtotal	26.103	19.921		7.583		15.013		-		15.013	-	-	-

	Prior Years	FY 2015		FY 2016		FY 2017 Base		FY 2017 OCO		FY 2017 Total	Cost To Complete	Total Cost	Target Value of Contract
Project Cost Totals	50.306	34.211		16.781		82.450		-		82.450	-	-	-

Remarks

Exhibit R-4, RDT&E Schedule Profile: PB 2017 Army		Date: February 2016
Appropriation/Budget Activity 2040 / 5	**R-1 Program Element (Number/Name)** PE 0604201A / *Aircraft Avionics*	**Project (Number/Name)** VU3 / *Networking And Mission Planning*

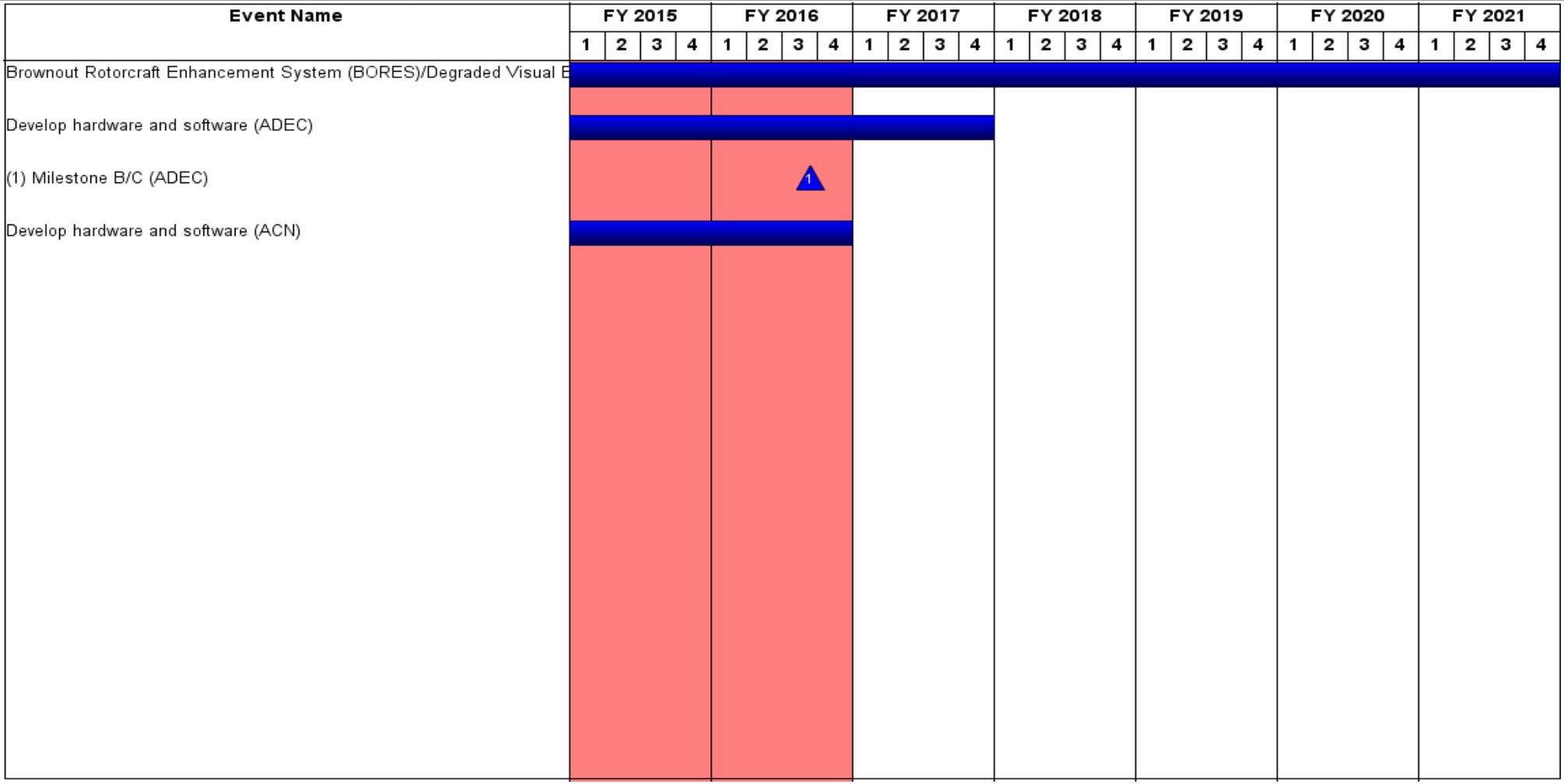

Exhibit R-4A, RDT&E Schedule Details: PB 2017 Army		Date: February 2016
Appropriation/Budget Activity 2040 / 5	**R-1 Program Element (Number/Name)** PE 0604201A / *Aircraft Avionics*	**Project (Number/Name)** VU3 / *Networking And Mission Planning*

Schedule Details

	Start		End	
Events	**Quarter**	**Year**	**Quarter**	**Year**
Brownout Rotorcraft Enhancement System (BORES)/Degraded Visual Environment (DVE)	4	2011	4	2021
Develop hardware and software (ADEC)	2	2011	4	2017
Milestone B/C (ADEC)	3	2016	3	2016
Develop hardware and software (ACN)	1	2012	4	2016

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