Exhibit R-2, RDT&E Budget Item Justification: FY 2018 Army											Date: May 2017	
Appropriation/Budget Activity 2040: *Research, Development, Test & Evaluation, Army I* BA 5: *System Development & Demonstration (SDD)*					R-1 Program Element (Number/Name) PE 0604290A *I Mid-tier Networking Vehicular Radio (MNVR)*							
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	-	8.416	12.172	10.589	-	10.589	5.401	20.287	4.947	0.225	Continuing	Continuing
DW1: *Mid-Tier Wideband Networking Vehicular Radio Mnvr*	-	8.416	12.172	10.589	-	10.589	5.401	20.287	4.947	0.225	Continuing	Continuing

Note

The Army has postponed Initial Operational Test & Evaluation (IOT&E) from FY 2017 to FY 2020, to take advantage of next generation radio improvements.

A. Mission Description and Budget Item Justification

The Mid-tier Networking Vehicular Radios (MNVR) enables the extension of data services within the tactical network through seamless integration of the upper and lower tiers; providing software-defined, multi-channel networking radios for a wide variety of Army tactical vehicles to meet the Army's requirement for the Mid-tier Wideband Networking (MWN) capability. The MNVR provides self-forming and self-healing communication networks from the brigade to the platoon level throughout the full range of military operations.

The MNVR, a modified Non-Developmental Item (NDI), supports Army Mission Command operational requirements with a multi-channel, Type 1 (supporting multiple independent levels of security), vehicular mounted radio hosting networking waveforms Wideband Networking Waveform (WNW) and Soldier Radio Waveform (SRW). The MNVR narrows the data capability gap at the Brigade Combat Team (BCT) company level and provides the capability to build a data extension to the lowest echelons, and then enables the extension of services from the Forward Operating Base (FOB) to the platform. MNVR provides a dynamic, scalable, On-the-Move (OTM) network architecture, connecting the Soldier to the Mission Command (MC) Network and enhances capability to exchange voice and data simultaneously and faster than current systems. The advanced network waveforms provide rapid distribution of data and imagery with increased information assurance protection and automatic routing across complex terrain. The system operates Internet Protocol (IP) based networking waveforms offering increased data throughput through self-forming, self-healing, managed communication networks. Its route and retransmit functionality links waveforms in different frequency bands, within the 2 Megahertz (MHz) to 2 Gigahertz (GHz) range, to form one cohesive network. MNVR nomenclature has been designated as AN/VRC-118(V)1.

A single award contract was awarded on 24 September 2013, Indefinite Delivery Indefinite Quantity (IDIQ), firm fixed price, 3-year ordering period. Production of 232 radios for Test & Evaluation and certification purposes was completed in 3QFY 2014. On 3 Oct 2016, Defense Acquisition Executive (ADM) published a MNVR MS C Acquisition Decision Memorandum. Product Manager (PdM) MNVR will prepare for Government Regression Testing (GRT) and evaluation planning for First Unit Equipped (FUE).

Exhibit R-2, RDT&E Budget Item Justification: FY 2018 Army					Date: May 2017
Appropriation/Budget Activity 2040: *Research, Development, Test & Evaluation, Army I* BA 5: *System Development & Demonstration (SDD)*		**R-1 Program Element (Number/Name)** PE 0604290A *I Mid-tier Networking Vehicular Radio (MNVR)*			
B. Program Change Summary ($ in Millions)	**FY 2016**	**FY 2017**	**FY 2018 Base**	**FY 2018 OCO**	**FY 2018 Total**
Previous President's Budget	8.763	12.172	10.700	-	10.700
Current President's Budget	8.416	12.172	10.589	-	10.589
Total Adjustments	-0.347	0.000	-0.111	-	-0.111
• Congressional General Reductions	-	-			
• Congressional Directed Reductions	-	-			
• Congressional Rescissions	-	-			
• Congressional Adds	-	-			
• Congressional Directed Transfers	-	-			
• Reprogrammings	-	-			
• SBIR/STTR Transfer	-0.347	-			
• Adjustments to Budget Years	0.000	0.000	-0.111	-	-0.111

Change Summary Explanation

Reduction in funding reflects delaying IOTE to FY20.

Exhibit R-2A, RDT&E Project Justification: FY 2018 Army			Date: May 2017
Appropriation/Budget Activity 2040 / 5	R-1 Program Element (Number/Name) PE 0604290A / *Mid-tier Networking Vehicular Radio (MNVR)*	Project (Number/Name) DW1 / *Mid-Tier Wideband Networking Vehicular Radio Mnvr*	

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
DW1: *Mid-Tier Wideband Networking Vehicular Radio Mnvr*	-	8.416	12.172	10.589	-	10.589	5.401	20.287	4.947	0.225	Continuing	Continuing
Quantity of RDT&E Articles	-	-	-	-	-	-	-	-	-	-		

Note

The Army has postponed Initial Operational Test & Evaluation (IOT&E) from FY 2017 to FY 2020.

A. Mission Description and Budget Item Justification

The Mid-tier Networking Vehicular Radios (MNVR) enables the extension of data services within the tactical network through seamless integration of the upper and lower tiers; providing software-defined, multi-channel networking radios for a wide variety of Army tactical vehicles to meet the Army's requirement for the Mid-tier Wideband Networking (MWN) capability. The MNVR provides self-forming and self-healing communication networks from the brigade to the platoon level throughout the full range of military operations.

The MNVR, a modified Non-Developmental Item (NDI), supports Army Mission Command operational requirements with a multi-channel, Type 1 (supporting multiple independent levels of security), vehicular mounted radio hosting networking waveforms, Wideband Networking Waveform (WNW) and Soldier Radio Waveform (SRW). The MNVR narrows the data capability gap at the Brigade Combat Team (BCT) company level and provides the capability to build a data extension to the lowest echelons, and then enables the extension of services from the Forward Operating Base (FOB) to the platform. MNVR provides a dynamic, scalable, On-the-Move (OTM) network architecture, connecting the Soldier to the Mission Command (MC) Network and enhances capability to exchange voice and data simultaneously and faster than current systems. The advanced network waveforms provide rapid distribution of data and imagery with increased information assurance protection and automatic routing across complex terrain. The system operates Internet Protocol (IP) based networking waveforms offering increased data throughput through self-forming, self-healing, managed communication networks. Its route and retransmit functionality links waveforms in different frequency bands, within the 2 Megahertz (MHz) to 2 Gigahertz (GHz) range, to form one cohesive network. MNVR nomenclature has been designated as AN/VRC-118(V)1.

A single award contract was awarded on 24 September 2013, Indefinite Delivery Indefinite Quantity (IDIQ), firm fixed price, 3-year ordering period. Production of 232 radios for Test & Evaluation and certification purposes was completed in 3QFY 2014. On 3 Oct 2016, Defense Acquisition Executive (ADM) published a MNVR MS C Acquisition Decision Memorandum. Product Manager (PdM) MNVR will prepare for Government Regression Testing (GRT) and evaluation planning for First Unit Equipped (FUE).

B. Accomplishments/Planned Programs ($ in Millions)	FY 2016	FY 2017	FY 2018
Title: Mid-tier Networking Vehicular Radio (MNVR)	8.416	12.172	10.589

Exhibit R-2A, RDT&E Project Justification: FY 2018 Army		Date: May 2017
Appropriation/Budget Activity 2040 / 5	**R-1 Program Element (Number/Name)** PE 0604290A / *Mid-tier Networking Vehicular Radio (MNVR)*	**Project (Number/Name)** DW1 / *Mid-Tier Wideband Networking Vehicular Radio Mnvr*

B. Accomplishments/Planned Programs ($ in Millions)	FY 2016	FY 2017	FY 2018
Description: RDTE funding supports efforts to test and certify industry solutions for a modified NDI radio; contract management, and test & certification efforts through IOT&E. ***FY 2016 Accomplishments:*** FY 2016 supports efforts needed to execute the modified NDI strategy for a mid-tier networking vehicular radio capability; focus is on continued test and system certification efforts for the AN/VRC-118(V)1 MNVR. Planned activities include participation in a VCSA directed Mid-Tier Assessment at NIE 16.2, ongoing GRT, System of System (SoS) Risk Reduction Testing, range testing in a dense foliage environment, and preparation for IOT&E. ***FY 2017 Plans:*** FY 2017 supports system test and evaluation efforts needed to execute the modified NDI strategy for a mid-tier networking vehicular radio capability; focus is on continued test and system certification efforts for the AN/VRC-118(V)1 MNVR. Planned activities include conduct of IOT&E, from which an OMAR will be developed to inform a Full-Rate Production (FRP) decision in 3QFY 2018; development of a Request for Proposal (RFP) for follow-on radio contract award; Initial Operating Capability (IOC); and continued MNVR Systems Test and Evaluation efforts. ***FY 2018 Plans:*** FY2018 supports system test and evaluation efforts to execute the modified NDI strategy for the mid-tier networking vehicular radio capability; focus is on development of a Request for Proposal (RFP) release for follow on contract award; conduct Source Selection Performance Demonstration test, and engineering Contract Support.			
Accomplishments/Planned Programs Subtotals	8.416	12.172	10.589

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
• OPA Funding - B51001: *Mid-tier Networking Vehicular Radio (MNVR)*	27.762	25.017	25.100	-	25.100	47.292	33.553	47.108	80.253	Continuing	Continuing

Remarks

D. Acquisition Strategy

The MNVR is a modified NDI industry solution for a multi-channel vehicular radio hosting networking waveforms. This modified NDI approach takes advantage of competitively priced, mature and producible technology that meets technical specifications.

Exhibit R-2A, RDT&E Project Justification: FY 2018 Army		Date: May 2017
Appropriation/Budget Activity 2040 / 5	**R-1 Program Element (Number/Name)** PE 0604290A / *Mid-tier Networking Vehicular Radio (MNVR)*	**Project (Number/Name)** DW1 / *Mid-Tier Wideband Networking Vehicular Radio Mnvr*

An Acquisition Decision Memorandum (ADM) was signed on 20 September 2013 by the Defense Acquisition Executive (DAE), approving a Materiel Development Decision (MDD). The ADM designated MNVR as an ACAT 1D Special Interest Program under the continued oversight of the DAE. The ADM also approved the award of a competitive contract, and authorized the procurement of up to 232 modified NDI radios for Test & Evaluation, Platform Integration and Certification purposes in order to inform a MS C decision. On 3 Oct 2016, Defense Acquisition Executive (ADM) published a MNVR MS C Acquisition Decision Memorandum.

E. Performance Metrics

N/A

Exhibit R-3, RDT&E Project Cost Analysis: FY 2018 Army			Date: May 2017
Appropriation/Budget Activity 2040 / 5	R-1 Program Element (Number/Name) PE 0604290A / *Mid-tier Networking Vehicular Radio (MNVR)*	Project (Number/Name) DW1 / *Mid-Tier Wideband Networking Vehicular Radio Mnvr*	

Management Services ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2016 Cost	FY 2016 Award Date	FY 2017 Cost	FY 2017 Award Date	FY 2018 Base Cost	FY 2018 Base Award Date	FY 2018 OCO Cost	FY 2018 OCO Award Date	FY 2018 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Management Services - PMO	Various	Aberdeen Proving Ground : Maryland	36.424	0.105		0.316		0.385	Jun 2018	-		0.385	Continuing	Continuing	0.000
Management Services - Engineering Contractor Support	Various	Various : Various	0.000	-		5.065		2.675	Jan 2018	-		2.675	0.000	7.740	0.000
		Subtotal	36.424	0.105		5.381		3.060		-		3.060	-	-	0.000

Test and Evaluation ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2016 Cost	FY 2016 Award Date	FY 2017 Cost	FY 2017 Award Date	FY 2018 Base Cost	FY 2018 Base Award Date	FY 2018 OCO Cost	FY 2018 OCO Award Date	FY 2018 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Systems Test and Evaluation	Various	Multiple : Various	30.739	8.311		5.127		-		-		-	Continuing	Continuing	0.000
Dynamic Network Connectivity	TBD	To Be Determined : To Be Determined	0.000	-		1.664		1.873	Jun 2018	-		1.873	0.000	3.537	0.000
Source Selection Performance Demonstration (SSPDS) Tests	Various	Multiple : Various	14.301	-		-		5.656	Jan 2018	-		5.656	0.000	19.957	0.000
		Subtotal	45.040	8.311		6.791		7.529		-		7.529	-	-	0.000

	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	81.464	8.416		12.172		10.589		-		10.589	-	-	-

Remarks

Exhibit R-4, RDT&E Schedule Profile: FY 2018 Army		Date: May 2017
Appropriation/Budget Activity 2040 / 5	**R-1 Program Element (Number/Name)** PE 0604290A / *Mid-tier Networking Vehicular Radio (MNVR)*	**Project (Number/Name)** DW1 / *Mid-Tier Wideband Networking Vehicular Radio Mnvr*

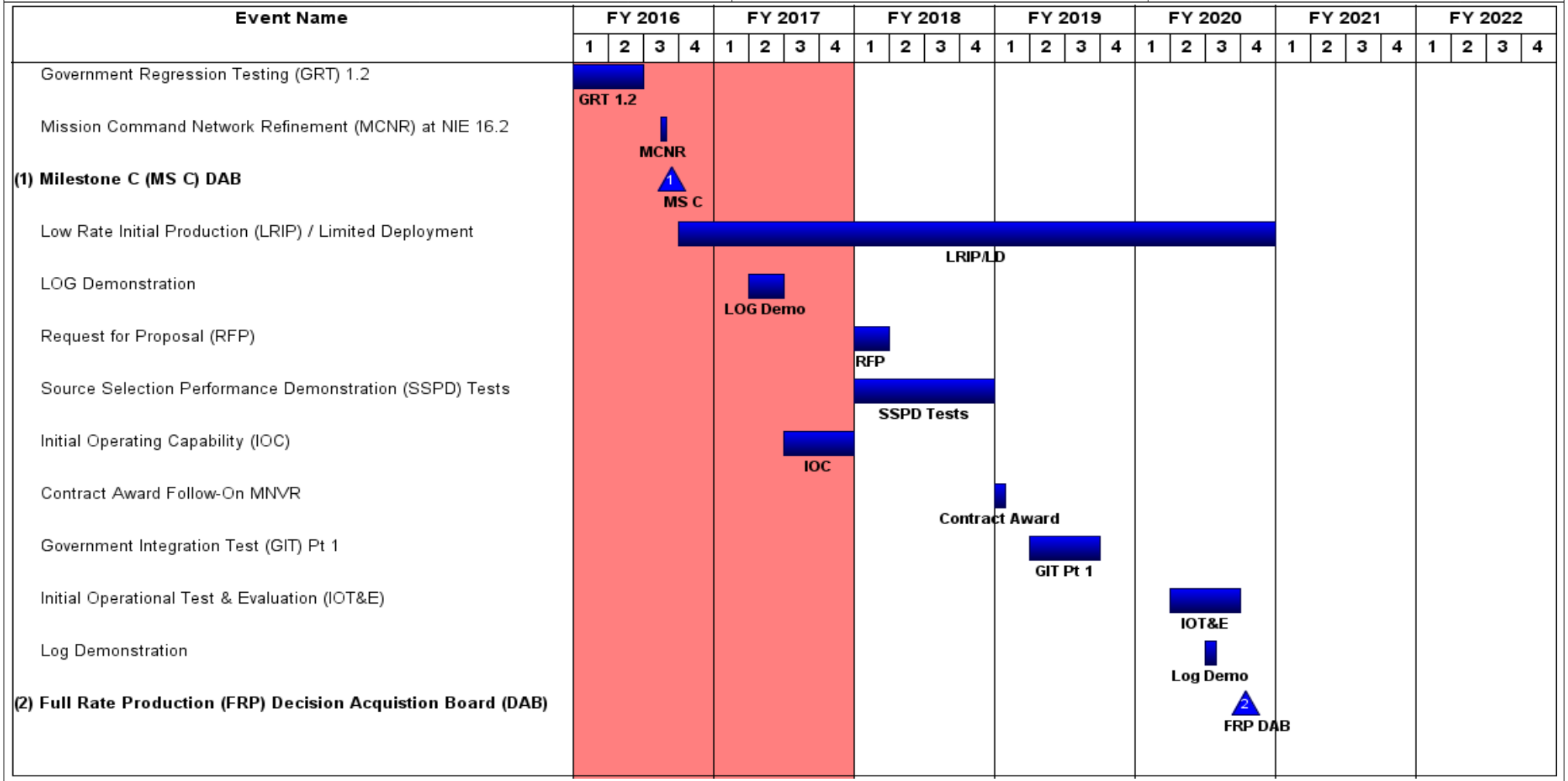

Exhibit R-4, RDT&E Schedule Profile: FY 2018 Army		Date: May 2017
Appropriation/Budget Activity 2040 / 5	**R-1 Program Element (Number/Name)** PE 0604290A / *Mid-tier Networking Vehicular Radio (MNVR)*	**Project (Number/Name)** DW1 / *Mid-Tier Wideband Networking Vehicular Radio Mnvr*

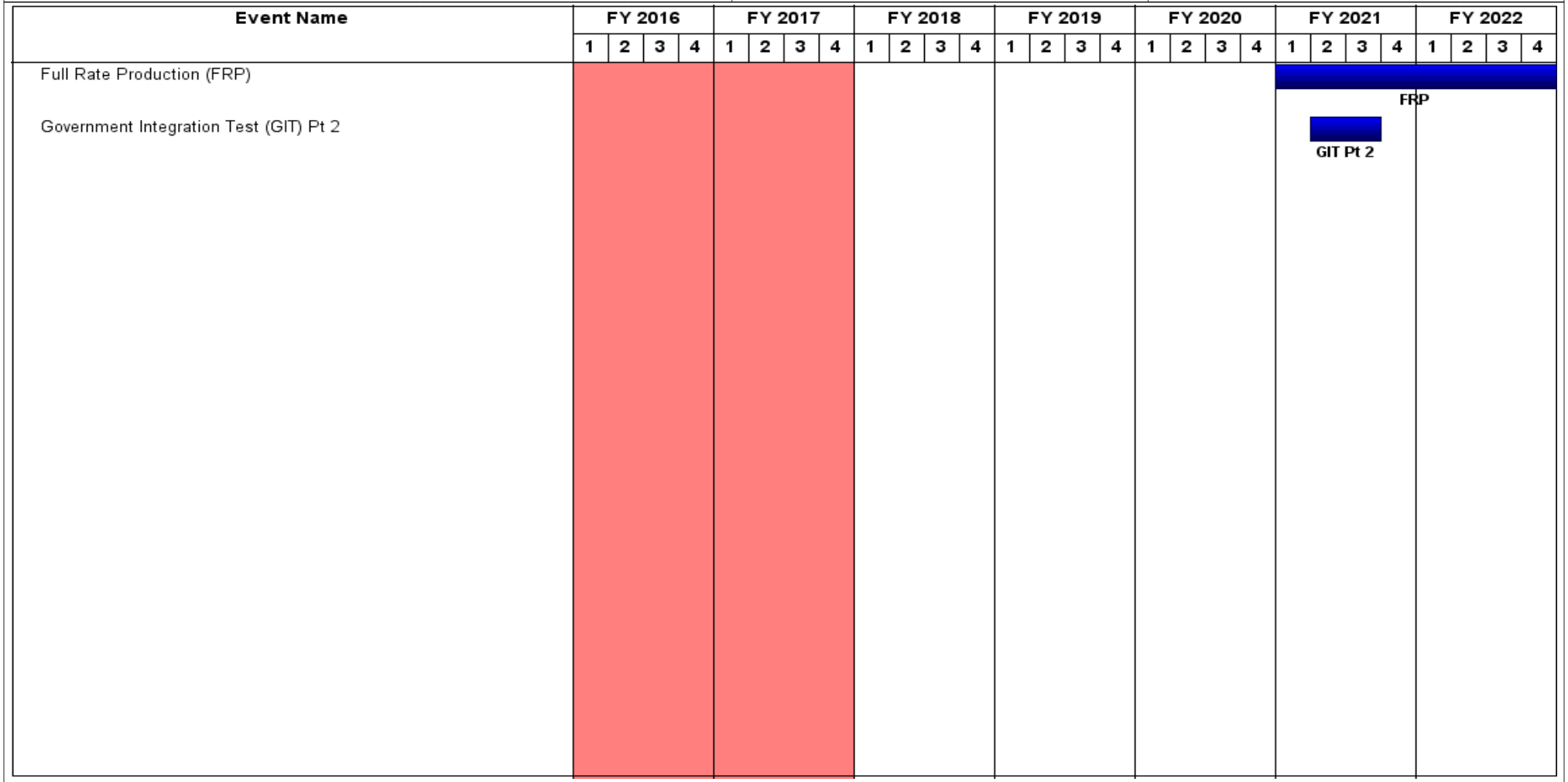

Exhibit R-4A, RDT&E Schedule Details: FY 2018 Army		Date: May 2017
Appropriation/Budget Activity 2040 / 5	**R-1 Program Element (Number/Name)** PE 0604290A / *Mid-tier Networking Vehicular Radio (MNVR)*	**Project (Number/Name)** DW1 / *Mid-Tier Wideband Networking Vehicular Radio Mnvr*

Schedule Details

	Start		End	
Events	**Quarter**	**Year**	**Quarter**	**Year**
Government Regression Testing (GRT) 1.2	1	2016	2	2016
Mission Command Network Refinement (MCNR) at NIE 16.2	3	2016	3	2016
Milestone C (MS C) DAB	3	2016	3	2016
Low Rate Initial Production (LRIP) / Limited Deployment	4	2016	4	2020
LOG Demonstration	2	2017	2	2017
Request for Proposal (RFP)	1	2018	1	2018
Source Selection Performance Demonstration (SSPD) Tests	1	2018	4	2018
Initial Operating Capability (IOC)	3	2017	4	2017
Contract Award Follow-On MNVR	1	2019	1	2019
Government Integration Test (GIT) Pt 1	2	2019	3	2019
Initial Operational Test & Evaluation (IOT&E)	2	2020	3	2020
Log Demonstration	3	2020	3	2020
Full Rate Production (FRP) Decision Acquistion Board (DAB)	4	2020	4	2020
Full Rate Production (FRP)	1	2021	4	2022
Government Integration Test (GIT) Pt 2	2	2021	3	2021

Note

06 May 2013: Joint Requirements Review Council (JROC) approved the MNVR Capability Production Document (CPD)
09 May 2013: Defense Acquisition Executive (DAE) changed basis of the program from Directed Requirement to the MNVR CPD
- Directed that MNVR would not field until all MS C requirements met. Delayed fielding from Capability Set (CS) 15 to CS 17
20 Sept 2013: DAE signs MNVR Milestone Decision Document (MDD)
24 Sept 2013: Army Contracting Command (ACC) awards MNVR contract to Harris Corporation; executed delivery order of 232 radios.
May 2015: MNVR conducted a successful LUT at Network Integration Evaluation (NIE) 15.2 in preparation for MS C.
May 2016: MNVR participated in the MCNR assessment at NIE 16.2 where the Army validated the mid-tier requirement, recommending to proceed to MS C, and the ARMY postponed IOT&E from FY 2017 to FY 2020.

Exhibit R-4A, RDT&E Schedule Details: FY 2018 Army		Date: May 2017
Appropriation/Budget Activity 2040 / 5	**R-1 Program Element (Number/Name)** PE 0604290A / *Mid-tier Networking Vehicular Radio (MNVR)*	**Project (Number/Name)** DW1 / *Mid-Tier Wideband Networking Vehicular Radio Mnvr*

Oct 2016: MS C Achieved. On 3 Oct 2016, Defense Acquisition Executive (ADM) published a MNVR MS C Acquisition Decision Memorandum.