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**Exhibit R-2, RDT&E Budget Item Justification: PB 2021 Army** **Date:** February 2020

<b>Appropriation/Budget Activity</b> 2040: <i>Research, Development, Test &amp; Evaluation, Army / BA 4: Advanced Component Development &amp; Prototypes (ACD&amp;P)</i>	<b>R-1 Program Element (Number/Name)</b> PE 0604541A / <i>Unified Network Transport</i>
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COST (\$ in Millions)	Prior Years	FY 2019	FY 2020	FY 2021 Base	FY 2021 OCO	FY 2021 Total	FY 2022	FY 2023	FY 2024	FY 2025	Cost To Complete	Total Cost
Total Program Element	-	0.000	29.700	40.677	-	40.677	40.924	41.204	41.219	41.422	Continuing	Continuing
BT1: <i>Interoperability</i>	-	0.000	5.175	0.000	-	0.000	0.000	0.000	0.000	0.000	0.000	5.175
BT2: <i>Command Post Mobility/ Survivability</i>	-	0.000	5.550	9.728	-	9.728	9.729	9.729	9.729	9.729	Continuing	Continuing
BT3: <i>Common Operating Environment (COE)</i>	-	0.000	4.350	8.164	-	8.164	8.169	8.176	8.180	8.192	Continuing	Continuing
BT4: <i>Network Technology Maturation Initiatives (NTMI)</i>	-	0.000	2.400	0.000	-	0.000	0.000	0.000	0.000	0.000	0.000	2.400
BT5: <i>Integrated Tactical Network/Enterprise Network</i>	-	0.000	12.225	22.785	-	22.785	23.026	23.299	23.310	23.501	Continuing	Continuing

**Note**

Funds supporting CFT Network efforts were previously requested in program Cross Functional Team (CFT) Advanced Development & Prototyping, OSD PE 0604020A.

**A. Mission Description and Budget Item Justification**

Unified Network Transport is directly aligned to the Army Network Modernization Strategy LOE 1 Unified Network; LOE 2, Common Operating Environment (COE), LOE 3, Interoperability; and LOE 4, Command Post Mobility and Survivability. These efforts support advanced component development activities that are aligned to the Army's Tactical Network Capability Set development and fielding plans.

The Network Cross-Functional Team (N-CFT) engages in technology demonstrations, focused evaluations, and expert analysis to inform future requirements, mature technologies, and deliver new capabilities. Subsequent to a decision for materiel development, the N-CFT develops and refines capability documentation aligned with the appropriate transition approach. The N-CFT will inform technology transitions, research and development, and user assessments, and then rapidly transition to appropriate Programs of Record.

FY 2021 funds will support identification, maturation, demonstration, and evaluation of Technology Readiness Level (TRL) 6+ systems and subsystem components including, but not limited to, resilient Line of Site (LOS) and beyond Line of Sight (BLOS) communications, information systems and information management; cyber electromagnetic activities (CEMA) situational understanding and operations; intelligence fusion, cloud technologies, virtual augmentation, artificial intelligence, and data convergence and analytics in the Common Operating Environment to inform the Integrated Tactical Network/Enterprise Network and Enabling Functions, Computing Environments, Interoperability and Command Posts. Successful solutions identified through evaluation in a high fidelity and realistic operating environment will be transitioned to Programs of Record for integration and fielding. Funds will also support integration with solutions identified in the other Modernization CFT efforts to ensure network dependencies are addressed.

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<b>Exhibit R-2, RDT&amp;E Budget Item Justification:</b> PB 2021 Army	<b>Date:</b> February 2020
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<b>Appropriation/Budget Activity</b> 2040: <i>Research, Development, Test &amp; Evaluation, Army / BA 4: Advanced Component Development &amp; Prototypes (ACD&amp;P)</i>	<b>R-1 Program Element (Number/Name)</b> PE 0604541A / <i>Unified Network Transport</i>
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<b>B. Program Change Summary (\$ in Millions)</b>	<b>FY 2019</b>	<b>FY 2020</b>	<b>FY 2021 Base</b>	<b>FY 2021 OCO</b>	<b>FY 2021 Total</b>
Previous President's Budget	0.000	39.600	41.400	-	41.400
Current President's Budget	0.000	29.700	40.677	-	40.677
Total Adjustments	0.000	-9.900	-0.723	-	-0.723
• Congressional General Reductions	-	-			
• Congressional Directed Reductions	-	-9.900			
• Congressional Rescissions	-	-			
• Congressional Adds	-	-			
• Congressional Directed Transfers	-	-			
• Reprogrammings	-	-			
• SBIR/STTR Transfer	-	-			
• Adjustments to Budget Years	-	-	-0.723	-	-0.723

**Change Summary Explanation**

N/A: FY20 New Start Program

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<b>Exhibit R-2A, RDT&amp;E Project Justification:</b> PB 2021 Army										<b>Date:</b> February 2020		
<b>Appropriation/Budget Activity</b> 2040 / 4					<b>R-1 Program Element (Number/Name)</b> PE 0604541A / <i>Unified Network Transport</i>				<b>Project (Number/Name)</b> BT1 / <i>Interoperability</i>			
<b>COST (\$ in Millions)</b>	<b>Prior Years</b>	<b>FY 2019</b>	<b>FY 2020</b>	<b>FY 2021 Base</b>	<b>FY 2021 OCO</b>	<b>FY 2021 Total</b>	<b>FY 2022</b>	<b>FY 2023</b>	<b>FY 2024</b>	<b>FY 2025</b>	<b>Cost To Complete</b>	<b>Total Cost</b>
BT1: <i>Interoperability</i>	-	0.000	5.175	0.000	-	0.000	0.000	0.000	0.000	0.000	0.000	5.175
Quantity of RDT&E Articles	-	-	-	-	-	-	-	-	-	-		

**A. Mission Description and Budget Item Justification**

Interoperability is directly aligned to the Army Network Modernization Strategy LOE 1 and 2, Unified Network Transport and Common Operating Environment, respectively. These efforts support advanced component development activities that are aligned to the Army's Tactical Network Capability Set development and fielding plans.

The project enables Unified Action Partner Interoperability through integration into the Joint Information Environment (JIE) and the Mission Partner Environment (MPE). Interoperability is the ability to routinely act together coherently, effectively and efficiently to achieve tactical, operational, and strategic objectives. Interoperability between disparate forces allows coalitions to produce greater combat power than the sum of their parts by leveraging relative strengths while mitigating relative weaknesses.

Funding is used for technical maturation and evaluation of technologies to address gaps associated with LOE 3, Interoperability, solutions that will incorporate common commercial standards and/or widely recognized military interoperability standards. This funding will support demonstrations and experimentation, in a relevant operational environment, of key research and development (R&D) and science and technology (S&T) initiatives related to this effort, to include communications, information systems and information management; intelligence, surveillance and reconnaissance; intelligence fusion and digital fires.

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

	<b>FY 2019</b>	<b>FY 2020</b>	<b>FY 2021</b>
<b>Title:</b> BT1: Interoperability	-	4.940	-
<p><b>Description:</b> This funding is used to identify and acquire technologies to address gaps associated with LOE 3, Interoperability, solutions for evaluation that will incorporate abilities to leverage common commercial standards and/ or widely recognized military interoperability standards. This funding will support demonstrations and evaluations, in a relevant operational environment, of key research and development (R&amp;D) and science and technology (S&amp;T) initiatives related to interoperability, to include communications, information systems and information management; intelligence, surveillance and reconnaissance; intelligence fusion and digital fires.</p> <p><b>FY 2020 Plans:</b> FY 2020 funding initiates assessment of Unified Action Partners (UAPs) to determine levels of interoperability and integrate requirements by echelon, unit type and partner. Also, this funding initiates identifying multiple classification levels and access on Mission Partner Environment (MPE) solutions for evaluation. FY20 funding supports joint interoperability assessments during available user exercises such as, but not limited to: Joint Warfighter Assessment 20 and DEFENDER 20. Funding enables the Army to identify potential solutions for the following: enabling technologies to support the Army operating in an MPE; a deployed</p>			

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<b>Exhibit R-2A, RDT&amp;E Project Justification:</b> PB 2021 Army		<b>Date:</b> February 2020		
<b>Appropriation/Budget Activity</b> 2040 / 4	<b>R-1 Program Element (Number/Name)</b> PE 0604541A / <i>Unified Network Transport</i>	<b>Project (Number/Name)</b> BT1 / <i>Interoperability</i>		
<b>B. Accomplishments/Planned Programs (\$ in Millions)</b>		<b>FY 2019</b>	<b>FY 2020</b>	<b>FY 2021</b>
Army solution to extend episodic MPEs into the tactical network; and implementing solutions to UAP information exchange gaps (data, message and waveform Interoperability).  <b>FY 2020 to FY 2021 Increase/Decrease Statement:</b> Funding realigned to BT5 and BT3 to better align Interoperability objectives within Integrated Tactical/Enterprise Network and Common Operating Environment efforts.				
<b>Title:</b> FY 2020 SBIR/STTR Transfer  <b>Description:</b> Funding transferred in accordance with Title 15 USC ?638  <b>FY 2020 Plans:</b> Funding transferred in accordance with Title 15 USC ?638  <b>FY 2020 to FY 2021 Increase/Decrease Statement:</b> Funding transferred in accordance with Title 15 USC ?638		-	0.235	-
<b>Accomplishments/Planned Programs Subtotals</b>		-	5.175	-
<b>C. Other Program Funding Summary (\$ in Millions)</b> N/A				
<b>Remarks</b>				
<b>D. Acquisition Strategy</b> The Network CFT will coordinate on technologies to be evaluated with appropriate Program Management offices where there is an opportunity for technology insertion. Technologies that are determined to address technology gaps and require further evaluation will be documented in an acquisition decision memorandum after being approved by the Milestone Decision Authority. The various prototyping technologies will be pursued via competitively awarded contracts using best value source selection procedures.				

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**Exhibit R-3, RDT&E Project Cost Analysis: PB 2021 Army** **Date:** February 2020

<b>Appropriation/Budget Activity</b> 2040 / 4	<b>R-1 Program Element (Number/Name)</b> PE 0604541A / <i>Unified Network Transport</i>	<b>Project (Number/Name)</b> BT1 / <i>Interoperability</i>
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<b>Management Services (\$ in Millions)</b>				FY 2019		FY 2020		FY 2021 Base		FY 2021 OCO		FY 2021 Total	Cost To Complete	Total Cost	Target Value of Contract
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
Product Management Office Support	TBD	TBD : TBD	-	-		0.441	Mar 2020	-		-		-	0.000	0.441	-
FY 2020 SBIR/STTR Transfer	TBD	Various : Various	-	-		0.235		-		-		-	0.000	0.235	-
<b>Subtotal</b>			-	-		0.676		-		-		-	0.000	0.676	N/A

<b>Product Development (\$ in Millions)</b>				FY 2019		FY 2020		FY 2021 Base		FY 2021 OCO		FY 2021 Total	Cost To Complete	Total Cost	Target Value of Contract
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
TEM (Technical Exchange Meeting) Prototyping and Evaluations	TBD	TBD : TBD	-	-		3.117	Jul 2020	-		-		-	0.000	3.117	-
<b>Subtotal</b>			-	-		3.117		-		-		-	0.000	3.117	N/A

<b>Support (\$ in Millions)</b>				FY 2019		FY 2020		FY 2021 Base		FY 2021 OCO		FY 2021 Total	Cost To Complete	Total Cost	Target Value of Contract
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
Interoperability Engineering and Technical Support	TBD	CCDC C5ISR : APG, MD	-	-		0.691	Mar 2020	-		-		-	0.000	0.691	-
<b>Subtotal</b>			-	-		0.691		-		-		-	0.000	0.691	N/A

<b>Test and Evaluation (\$ in Millions)</b>				FY 2019		FY 2020		FY 2021 Base		FY 2021 OCO		FY 2021 Total	Cost To Complete	Total Cost	Target Value of Contract
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
Interoperability Test and Evaluation	TBD	CCDC : C5ISR, PEO C3T : APG, MD	-	-		0.691	Mar 2020	-		-		-	0.000	0.691	-
<b>Subtotal</b>			-	-		0.691		-		-		-	0.000	0.691	N/A



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**Exhibit R-4, RDT&E Schedule Profile: PB 2021 Army** **Date:** February 2020

<b>Appropriation/Budget Activity</b> 2040 / 4	<b>R-1 Program Element (Number/Name)</b> PE 0604541A / <i>Unified Network Transport</i>	<b>Project (Number/Name)</b> BT1 / <i>Interoperability</i>
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Event Name	FY 2019				FY 2020				FY 2021				FY 2022				FY 2023				FY 2024				FY 2025			
	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
TEM (Technical Exchange Meeting) Prototyping and Evaluations																												
Interoperability Evaluation #1																												
Interoperability Evaluation #2																												

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**Exhibit R-4A, RDT&E Schedule Details:** PB 2021 Army **Date:** February 2020

<b>Appropriation/Budget Activity</b> 2040 / 4	<b>R-1 Program Element (Number/Name)</b> PE 0604541A / <i>Unified Network Transport</i>	<b>Project (Number/Name)</b> BT1 / <i>Interoperability</i>
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Schedule Details

Events	Start		End	
	Quarter	Year	Quarter	Year
TEM (Technical Exchange Meeting) Prototyping and Evaluations	2	2020	4	2020
Interoperability Evaluation #1	3	2020	3	2020
Interoperability Evaluation #2	3	2020	3	2020

**Note**

TEM projects are continuous activities; N-CFT will reach out to industry partners in order to assess and demonstrate the latest emerging technologies which will reduce capability gaps and provide rapid software/hardware insertions into Programs of Record.

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<b>Exhibit R-2A, RDT&amp;E Project Justification:</b> PB 2021 Army										<b>Date:</b> February 2020		
<b>Appropriation/Budget Activity</b> 2040 / 4					<b>R-1 Program Element (Number/Name)</b> PE 0604541A / <i>Unified Network Transport</i>				<b>Project (Number/Name)</b> BT2 / <i>Command Post Mobility/Survivability</i>			
<b>COST (\$ in Millions)</b>	<b>Prior Years</b>	<b>FY 2019</b>	<b>FY 2020</b>	<b>FY 2021 Base</b>	<b>FY 2021 OCO</b>	<b>FY 2021 Total</b>	<b>FY 2022</b>	<b>FY 2023</b>	<b>FY 2024</b>	<b>FY 2025</b>	<b>Cost To Complete</b>	<b>Total Cost</b>
BT2: <i>Command Post Mobility/Survivability</i>	-	0.000	5.550	9.728	-	9.728	9.729	9.729	9.729	9.729	Continuing	Continuing
Quantity of RDT&E Articles	-	-	-	-	-	-	-	-	-	-		

**A. Mission Description and Budget Item Justification**

Command Post Mobility/Survivability is directly aligned to the Army Network Modernization Strategy LOE4, Command Post Mobility and Survivability . These efforts support advanced component development activities that are directly aligned to the Army's Tactical Network Capability Set development and fielding plans.

This project supports mobile Command Post efforts and is directly aligned with the Command Post Integrated Infrastructure (CPI2). The technical maturation and evaluation allow for Command Post disaggregation capabilities to inform future designs. Spectrum obfuscation and assessments of antenna remoting will support the Command Post efforts for CPI2 Increment 2 and beyond.

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

	<b>FY 2019</b>	<b>FY 2020</b>	<b>FY 2021</b>
<b>Title:</b> BT2 Command Post Mobility and Survivability	-	5.298	9.728
<p><b>Description:</b> This funding is used to identify and acquire technologies for evaluation that address gaps associated with LOE 4, Command Post (CP), in the overall Integrated Tactical Network. The CP LOE will focus on developing and obtaining approval of requirements for integrated command posts, then delivering these integrated command post designs to Army units. LOE 4 addresses the operational requirement of Deployable, Integrated, and Mobile Command Post and integrates Knowledge Management.</p> <p><b>FY 2020 Plans:</b> FY 2020 funding initiates survivable command post solutions that enable dispersed Command Post (CP) footprint, reduced CP Electromagnetic vulnerability, and extensible CP decoys for deception. Also, subsequent funding will support evaluations that identify potential solutions for the following: Expeditionary tactical servers, integrated roll-on/roll-off kits, automated management and monitoring software to provision and manage command post; enhanced hardware operating at multiple classification levels pending availability of cross domain solution; technology enhancements addressing gaps discovered through the delivery of CP Directed Requirement capabilities, and the development and delivery of Integrated CP Designs that provide agility, mobility, and protection. Technologies with successful results will be transitioned into an existing Program of Record strategy for integration and fielding.</p> <p><b>FY 2021 Plans:</b> Funds will be used to mature, prototype, and evaluate emerging technologies that will inform design choices for the Command Post Integrated Infrastructure (CPI2) Increment 2 and beyond. Effort includes evaluation for tactically employable Command Post (CP) disaggregation capabilities, will also allow for the integration of spectrum obfuscation modes of employment for limited</p>			

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<b>Exhibit R-2A, RDT&amp;E Project Justification:</b> PB 2021 Army	<b>Date:</b> February 2020
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<b>Appropriation/Budget Activity</b> 2040 / 4	<b>R-1 Program Element (Number/Name)</b> PE 0604541A / <i>Unified Network Transport</i>	<b>Project (Number/Name)</b> BT2 / <i>Command Post Mobility/Survivability</i>
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<b>B. Accomplishments/Planned Programs (\$ in Millions)</b>	FY 2019	FY 2020	FY 2021
<p>radio frequency emissions capabilities into a tactically deployable CP and assess antenna remoting solutions, and will enable integration of Mission Partner Environment hardware components into the CP. These efforts will be demonstrated and evaluated with FORSCOM and inform the program technical baseline and DOTMLPF. Will conduct iterative Technical Exchange Meetings with Industry that will assess, demonstrate, prototype, and integrate emerging industry solutions to mature Command Post capabilities. Efforts will inform the requirements for a survivable and effective mobile Command Post in a contested and congested environment.</p> <p><b>FY 2020 to FY 2021 Increase/Decrease Statement:</b> Increase due to partial realignment of funding from BT1 to align Interoperability within Command Post Mobility/Survivability efforts and provide additional evaluations of the capability set roadmap.</p>			
<p><b>Title:</b> FY 2020 SBIR/STTR Transfer</p> <p><b>Description:</b> Funding transferred in accordance with Title 15 USC ?638</p> <p><b>FY 2020 Plans:</b> Funding transferred in accordance with Title 15 USC ?638</p> <p><b>FY 2020 to FY 2021 Increase/Decrease Statement:</b> Funding transferred in accordance with Title 15 USC ?638</p>	-	0.252	-
<b>Accomplishments/Planned Programs Subtotals</b>	-	5.550	9.728

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

N/A

**Remarks**

**D. Acquisition Strategy**

The Network CFT will coordinate on technologies to be evaluated with appropriate Program Management offices where there is an opportunity for technology insertion. Technologies that are determined to address technology gaps and require further evaluation will be documented in an acquisition decision memorandum after being approved by the Milestone Decision Authority. The various evaluations and prototyping of technologies will be pursued via competitively awarded contracts using best value source selection procedures.

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Exhibit R-3, RDT&E Project Cost Analysis: PB 2021 Army												Date: February 2020				
Appropriation/Budget Activity				R-1 Program Element (Number/Name)				Project (Number/Name)								
2040 / 4				PE 0604541A / Unified Network Transport				BT2 / Command Post Mobility/Survivability								
<b>Management Services (\$ in Millions)</b>				FY 2019		FY 2020		FY 2021 Base		FY 2021 OCO		FY 2021 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	
Project Management Office Support	TBD	TBD : TBD	-	-		0.437	Oct 2020	-		-		-	0.000	0.437	-	
FY 2020 SBIR/STTR Transfer	TBD	Various : Various	-	-		0.252		-		-		-	0.000	0.252	-	
<b>Subtotal</b>			-	-		0.689		-		-		-	0.000	0.689	N/A	
<b>Product Development (\$ in Millions)</b>				FY 2019		FY 2020		FY 2021 Base		FY 2021 OCO		FY 2021 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	
TEM (Technical Exchange Meeting) Prototyping and Evaluations	TBD	TBD : TBD	-	-		3.637	Jul 2020	-		-		-	0.000	3.637	-	
Commercially-driven Prototyping and Evaluation	TBD	TBD : TBD	-	-		-		4.428	Feb 2021	-		4.428	0.000	4.428	-	
Government-driven Prototyping and Evaluation	TBD	CCDC C5ISR; PEO C3T : APG, MD	-	-		-		5.300	Dec 2020	-		5.300	0.000	5.300	-	
<b>Subtotal</b>			-	-		3.637		9.728		-		9.728	0.000	13.365	N/A	
<b>Support (\$ in Millions)</b>				FY 2019		FY 2020		FY 2021 Base		FY 2021 OCO		FY 2021 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	
CP Engineering/Technical Support	TBD	TBD : TBD	-	-		0.687	Jul 2020	-		-		-	0.000	0.687	-	
<b>Subtotal</b>			-	-		0.687		-		-		-	0.000	0.687	N/A	
<b>Test and Evaluation (\$ in Millions)</b>				FY 2019		FY 2020		FY 2021 Base		FY 2021 OCO		FY 2021 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	
CP Test and Evaluation	TBD	TBD : TBD	-	-		0.537	Jul 2020	-		-		-	0.000	0.537	-	



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**Exhibit R-4, RDT&E Schedule Profile: PB 2021 Army** **Date:** February 2020

<b>Appropriation/Budget Activity</b> 2040 / 4	<b>R-1 Program Element (Number/Name)</b> PE 0604541A / <i>Unified Network Transport</i>	<b>Project (Number/Name)</b> BT2 / <i>Command Post Mobility/Survivability</i>
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Event Name	FY 2019				FY 2020				FY 2021				FY 2022				FY 2023				FY 2024				FY 2025			
	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
Node to Node Connectivity Solutions																												
TEM (Technical Exchange Meeting) Prototyping and Evaluations																												
Survivable Command Post																												
Warfighting Assessments - MPE/Network Operations																												

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**Exhibit R-4A, RDT&E Schedule Details:** PB 2021 Army **Date:** February 2020

<b>Appropriation/Budget Activity</b> 2040 / 4	<b>R-1 Program Element (Number/Name)</b> PE 0604541A / <i>Unified Network Transport</i>	<b>Project (Number/Name)</b> BT2 / <i>Command Post Mobility/Survivability</i>
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Schedule Details

Events	Start		End	
	Quarter	Year	Quarter	Year
Node to Node Connectivity Solutions	3	2020	4	2022
TEM (Technical Exchange Meeting) Prototyping and Evaluations	2	2020	4	2025
Survivable Command Post	2	2021	4	2022
Warfighting Assessments - MPE/Network Operations	1	2021	4	2021

**Note**

TEM projects are continuous activities; N-CFT will reach out to industry partners in order to assess and demonstrate the latest emerging technologies which will reduce capability gaps and provide rapid software/hardware insertions into Programs of Records.

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<b>Exhibit R-2A, RDT&amp;E Project Justification:</b> PB 2021 Army										<b>Date:</b> February 2020		
<b>Appropriation/Budget Activity</b> 2040 / 4					<b>R-1 Program Element (Number/Name)</b> PE 0604541A / <i>Unified Network Transport</i>				<b>Project (Number/Name)</b> BT3 / <i>Common Operating Environment (COE)</i>			
<b>COST (\$ in Millions)</b>	<b>Prior Years</b>	<b>FY 2019</b>	<b>FY 2020</b>	<b>FY 2021 Base</b>	<b>FY 2021 OCO</b>	<b>FY 2021 Total</b>	<b>FY 2022</b>	<b>FY 2023</b>	<b>FY 2024</b>	<b>FY 2025</b>	<b>Cost To Complete</b>	<b>Total Cost</b>
BT3: <i>Common Operating Environment (COE)</i>	-	0.000	4.350	8.164	-	8.164	8.169	8.176	8.180	8.192	Continuing	Continuing
Quantity of RDT&E Articles	-	-	-	-	-	-	-	-	-	-		

**A. Mission Description and Budget Item Justification**

Common Operating Environment (COE) is directly aligned to the Army Network Modernization Strategy LOE 2, Common Operating Environment (COE). These efforts support advanced component development activities that are aligned to the Army's Tactical Network Capability Set development and fielding plans.

This project will inform future network, applications and data capability sets by evaluating and maturing the use of cloud technologies, virtual augmentation, artificial intelligence, data convergence and analytics in the Common Operating Environment. This includes processing and storage to improve the architecture support for mobile, secure and distributed operations. Common Operating Environment (COE), creates an approved set of standards, computing technologies, integrated data and databases, common graphics and a unified set of mission command applications. It allows warfighters to adapt and configure the network as conditions change which is outlined in the approved COE requirements documents.

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

	<b>FY 2019</b>	<b>FY 2020</b>	<b>FY 2021</b>
<b>Title:</b> BT3 Common Operating Environment	-	4.153	8.164
<p><b>Description:</b> This funding is used to identify and acquire technologies to address gaps associated with LOE 2, Common Operating Environment (COE), in the overall Integrated Network. This LOE creates an approved set of standards, computing technologies, integrated data and databases and common graphics and a unified set of mission command applications. It will also support collaboration using a common picture with joint and coalition mission partners. This LOE delivers an integrated body of requirements that meet operational needs. The decisive action within this LOE is informing the next version of COE in FY 2021.</p> <p><b>FY 2020 Plans:</b> FY 2020 funding supports assessment and evaluation of potential solutions for the following: distributed computing, using cloud technologies in a tactical space, machine learning, a modular &amp; dockable computing infrastructure, and cyber hardening through Tactical Endpoint Security. Technologies with successful results will be transitioned to a rapid acquisition initiative or into an existing Program of Record strategy.</p> <p><b>FY 2021 Plans:</b> Will support evaluation of mature technologies that capture, correlate, and present data from available sources such as spectrum, electronic warfare (EW), red and gray space for visualization for cyber situational understanding. Will assess and evaluate the technical feasibility of solutions for expanded computing in tactical environments, data convergence, sensor integration across identified platforms, and flexible and scalable computing hardware/software. Will enable commanders to visualize, understand,</p>			

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<b>Exhibit R-2A, RDT&amp;E Project Justification:</b> PB 2021 Army		<b>Date:</b> February 2020		
<b>Appropriation/Budget Activity</b> 2040 / 4	<b>R-1 Program Element (Number/Name)</b> PE 0604541A / <i>Unified Network Transport</i>	<b>Project (Number/Name)</b> BT3 / <i>Common Operating Environment (COE)</i>		
<b>B. Accomplishments/Planned Programs (\$ in Millions)</b>		<b>FY 2019</b>	<b>FY 2020</b>	<b>FY 2021</b>
describe, and assess complex problems rapidly. Will conduct iterative Technical Exchange Meetings to find Industry potential solutions to assess, demonstrate, prototype, and integrate emerging industry solutions to mature Common Operating Environment capabilities.				
<b>FY 2020 to FY 2021 Increase/Decrease Statement:</b> Increase due to partial realignment of funding from BT1 to align Interoperability within Common Operating Environment efforts.				
<b>Title:</b> FY 2020 SBIR/STTR Transfer		-	0.197	-
<b>Description:</b> Funding transferred in accordance with Title 15 USC ?638				
<b>FY 2020 Plans:</b> Funding transferred in accordance with Title 15 USC ?638				
<b>FY 2020 to FY 2021 Increase/Decrease Statement:</b> Funding transferred in accordance with Title 15 USC ?638				
<b>Accomplishments/Planned Programs Subtotals</b>		-	4.350	8.164
<b>C. Other Program Funding Summary (\$ in Millions)</b>				
N/A				
<b>Remarks</b>				
<b>D. Acquisition Strategy</b>				
The Network CFT will coordinate on technologies to be evaluated with appropriate Program Management offices where there is an opportunity for technology insertion. Technologies that are determined to address technology gaps and require further evaluation will be documented in an acquisition decision memorandum after being approved by the Milestone Decision Authority. The prototyping technologies in this project will be pursued via competitively awarded contracts using best value source selection procedures.				

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Exhibit R-3, RDT&E Project Cost Analysis: PB 2021 Army												Date: February 2020				
Appropriation/Budget Activity				R-1 Program Element (Number/Name)				Project (Number/Name)								
2040 / 4				PE 0604541A / Unified Network Transport				BT3 / Common Operating Environment (COE)								
<b>Management Services (\$ in Millions)</b>				FY 2019		FY 2020		FY 2021 Base		FY 2021 OCO		FY 2021 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	
Project Management Office Support	TBD	TBD : TBD	-	-		0.451	Mar 2020	-		-		-	0.000	0.451	-	
FY 2020 SBIR/STTR Transfer	TBD	Various : Various	-	-		0.197		-		-		-	0.000	0.197	-	
<b>Subtotal</b>			-	-		0.648		-		-		-	0.000	0.648	N/A	
<b>Product Development (\$ in Millions)</b>				FY 2019		FY 2020		FY 2021 Base		FY 2021 OCO		FY 2021 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	
TEM (Technical Exchange Meeting) Prototyping and Evaluations	TBD	TBD : TBD	-	-		2.700	Jul 2020	-		-		-	0.000	2.700	-	
Commercially-driven Prototyping and Evaluation	TBD	TBD : TBD	-	-		-		7.164	Feb 2021	-		7.164	0.000	7.164	-	
Government-driven Prototyping and Evaluation	TBD	CCDC C5ISR, PEO C3T : APG, MD	-	-		-		1.000	Dec 2020	-		1.000	0.000	1.000	-	
<b>Subtotal</b>			-	-		2.700		8.164		-		8.164	0.000	10.864	N/A	
<b>Support (\$ in Millions)</b>				FY 2019		FY 2020		FY 2021 Base		FY 2021 OCO		FY 2021 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	
COE Engineering/ Technical Support	TBD	TBD : TBD	-	-		0.451	Mar 2020	-		-		-	0.000	0.451	-	
<b>Subtotal</b>			-	-		0.451		-		-		-	0.000	0.451	N/A	



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<b>Exhibit R-4, RDT&amp;E Schedule Profile: PB 2021 Army</b>		<b>Date:</b> February 2020
<b>Appropriation/Budget Activity</b> 2040 / 4	<b>R-1 Program Element (Number/Name)</b> PE 0604541A / <i>Unified Network Transport</i>	<b>Project (Number/Name)</b> BT3 / <i>Common Operating Environment (COE)</i>

Event Name	FY 2019				FY 2020				FY 2021				FY 2022				FY 2023				FY 2024				FY 2025			
	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
TEM (Technical Exchange Meeting) Prototyping and Evaluations																												
Cyber Situational Understanding																												

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<b>Exhibit R-4A, RDT&amp;E Schedule Details:</b> PB 2021 Army		<b>Date:</b> February 2020
<b>Appropriation/Budget Activity</b> 2040 / 4	<b>R-1 Program Element (Number/Name)</b> PE 0604541A / <i>Unified Network Transport</i>	<b>Project (Number/Name)</b> BT3 / <i>Common Operating Environment (COE)</i>

Schedule Details

Events	Start		End	
	Quarter	Year	Quarter	Year
TEM (Technical Exchange Meeting) Prototyping and Evaluations	2	2020	2	2025
Cyber Situational Understanding	2	2021	2	2022

**Note**  
 TEM projects are continuous activities; N-CFT will reach out to industry partners in order to assess and demonstrate the latest emerging technologies which will reduce capability gaps and provide rapid software/hardware insertions into Programs of Record.

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<b>Exhibit R-2A, RDT&amp;E Project Justification:</b> PB 2021 Army										<b>Date:</b> February 2020		
<b>Appropriation/Budget Activity</b> 2040 / 4					<b>R-1 Program Element (Number/Name)</b> PE 0604541A / <i>Unified Network Transport</i>				<b>Project (Number/Name)</b> BT4 / <i>Network Technology Maturation Initiatives (NTMI)</i>			
<b>COST (\$ in Millions)</b>	<b>Prior Years</b>	<b>FY 2019</b>	<b>FY 2020</b>	<b>FY 2021 Base</b>	<b>FY 2021 OCO</b>	<b>FY 2021 Total</b>	<b>FY 2022</b>	<b>FY 2023</b>	<b>FY 2024</b>	<b>FY 2025</b>	<b>Cost To Complete</b>	<b>Total Cost</b>
BT4: <i>Network Technology Maturation Initiatives (NTMI)</i>	-	0.000	2.400	0.000	-	0.000	0.000	0.000	0.000	0.000	0.000	2.400
Quantity of RDT&E Articles	-	-	-	-	-	-	-	-	-	-		

**Note**  
FY 2021 funding realigned to BT5 to reflect alignment with Integrated Tactical / Enterprise Network.

**A. Mission Description and Budget Item Justification**

This project is directly aligned to the Army Network Modernization Strategy Lines of Effort and Capability Set 23 objectives and beyond.

This project funding will mature solutions through evaluation from non-Army organizations that include the Services, Academia and other science and technology organizations. The lab-based and operational field evaluation and assessments will support the Army's use of technologies to support Joint collaboration and coordination of transport, network and data classification, visualization for Situational Understanding, CEMA, and artificial intelligence for Capability Set 23 and beyond. This includes evaluation and prototyping of mature algorithms/systems to support Joint and Coalition data sharing for Mission Command/Intel convergence, sensor to shooter cycles and Joint Multi-Domain Command and Control.

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

	<b>FY 2019</b>	<b>FY 2020</b>	<b>FY 2021</b>
<b>Title:</b> BT4: Network Technology Maturation Initiatives (NTMI)	-	2.291	-
<b>Description:</b> This funding will be used to continuously identify, prioritize, mature, demonstrate, and insert emerging technologies to enhance operational capability through our Market Research and Concept Capability Development activities. Funding provides engineering and programmatic support required for execution of lab-based and field prototyping and evaluation.			
<b>FY 2020 Plans:</b> This funding provides support required to identify successful solutions for transition into the tactical network through programs of record. FY 2020 funding supports lab-based and field evaluation of Government and Commercial solutions and solutions derived from mature Network Transport initiatives from Industry, the Services, and/or the Office of the Secretary of Defense.			
<b>FY 2020 to FY 2021 Increase/Decrease Statement:</b> Funding realigned to BT5 to reflect alignment with Integrated Tactical / Enterprise Network.			
<b>Title:</b> FY 2020 SBIR/STTR Transfer	-	0.109	-
<b>Description:</b> Funding transferred in accordance with Title 15 USC ?638			
<b>FY 2020 Plans:</b>			

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<b>Exhibit R-2A, RDT&amp;E Project Justification:</b> PB 2021 Army		<b>Date:</b> February 2020		
<b>Appropriation/Budget Activity</b> 2040 / 4	<b>R-1 Program Element (Number/Name)</b> PE 0604541A / <i>Unified Network Transport</i>	<b>Project (Number/Name)</b> BT4 / <i>Network Technology Maturation Initiatives (NTMI)</i>		
<b>B. Accomplishments/Planned Programs (\$ in Millions)</b>		<b>FY 2019</b>	<b>FY 2020</b>	<b>FY 2021</b>
Funding transferred in accordance with Title 15 USC ?638				
<b>FY 2020 to FY 2021 Increase/Decrease Statement:</b>				
Funding transferred in accordance with Title 15 USC ?638				
<b>Accomplishments/Planned Programs Subtotals</b>		-	2.400	-
<b>C. Other Program Funding Summary (\$ in Millions)</b>				
N/A				
<b>Remarks</b>				
<b>D. Acquisition Strategy</b>				
The various evaluations and prototyping of technologies will be pursued via competitively awarded contracts using best value source selection procedures.				

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**Exhibit R-3, RDT&E Project Cost Analysis: PB 2021 Army** **Date:** February 2020

<b>Appropriation/Budget Activity</b> 2040 / 4	<b>R-1 Program Element (Number/Name)</b> PE 0604541A / <i>Unified Network Transport</i>	<b>Project (Number/Name)</b> BT4 / <i>Network Technology Maturation Initiatives (NTMI)</i>
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<b>Management Services (\$ in Millions)</b>				FY 2019		FY 2020		FY 2021 Base		FY 2021 OCO		FY 2021 Total	Cost To Complete	Total Cost	Target Value of Contract
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
Project Management Office Support	TBD	TBD : TBD	-	-		0.214	Mar 2020	-		-		-	0.000	0.214	-
FY 2020 SBIR/STTR Transfer	TBD	Various : Various	-	-		0.109		-		-		-	0.000	0.109	-
<b>Subtotal</b>			-	-		0.323		-		-		-	0.000	0.323	N/A

<b>Support (\$ in Millions)</b>				FY 2019		FY 2020		FY 2021 Base		FY 2021 OCO		FY 2021 Total	Cost To Complete	Total Cost	Target Value of Contract
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
NTMI Engineering/ Technical Support	TBD	TBD : TBD	-	-		1.713	Apr 2020	-		-		-	0.000	1.713	-
<b>Subtotal</b>			-	-		1.713		-		-		-	0.000	1.713	N/A

<b>Test and Evaluation (\$ in Millions)</b>				FY 2019		FY 2020		FY 2021 Base		FY 2021 OCO		FY 2021 Total	Cost To Complete	Total Cost	Target Value of Contract
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
NTMI Test and Evaluation	TBD	TBD : TBD	-	-		0.364	Jun 2020	-		-		-	0.000	0.364	-
<b>Subtotal</b>			-	-		0.364		-		-		-	0.000	0.364	N/A

	Prior Years	FY 2019	FY 2020	FY 2021 Base	FY 2021 OCO	FY 2021 Total	Cost To Complete	Total Cost	Target Value of Contract
<b>Project Cost Totals</b>	-	-	2.400	-	-	-	0.000	2.400	N/A

**Remarks**

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<b>Exhibit R-4, RDT&amp;E Schedule Profile: PB 2021 Army</b>			<b>Date:</b> February 2020
<b>Appropriation/Budget Activity</b> 2040 / 4	<b>R-1 Program Element (Number/Name)</b> PE 0604541A / <i>Unified Network Transport</i>	<b>Project (Number/Name)</b> BT4 / <i>Network Technology Maturation Initiatives (NTMI)</i>	

Event Name	FY 2019				FY 2020				FY 2021				FY 2022				FY 2023				FY 2024				FY 2025			
	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
Commercial Network Transport Evaluation																												
Government Network Transport Evaluation																												

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<b>Exhibit R-4A, RDT&amp;E Schedule Details:</b> PB 2021 Army		<b>Date:</b> February 2020
<b>Appropriation/Budget Activity</b> 2040 / 4	<b>R-1 Program Element (Number/Name)</b> PE 0604541A / <i>Unified Network Transport</i>	<b>Project (Number/Name)</b> BT4 / <i>Network Technology Maturation Initiatives (NTMI)</i>

Schedule Details

Events	Start		End	
	Quarter	Year	Quarter	Year
Commercial Network Transport Evaluation	3	2020	4	2020
Government Network Transport Evaluation	3	2020	4	2020

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<b>Exhibit R-2A, RDT&amp;E Project Justification:</b> PB 2021 Army										<b>Date:</b> February 2020		
<b>Appropriation/Budget Activity</b> 2040 / 4					<b>R-1 Program Element (Number/Name)</b> PE 0604541A / <i>Unified Network Transport</i>				<b>Project (Number/Name)</b> BT5 / <i>Integrated Tactical Network/Enterprise Network</i>			
<b>COST (\$ in Millions)</b>	<b>Prior Years</b>	<b>FY 2019</b>	<b>FY 2020</b>	<b>FY 2021 Base</b>	<b>FY 2021 OCO</b>	<b>FY 2021 Total</b>	<b>FY 2022</b>	<b>FY 2023</b>	<b>FY 2024</b>	<b>FY 2025</b>	<b>Cost To Complete</b>	<b>Total Cost</b>
BT5: <i>Integrated Tactical Network/Enterprise Network</i>	-	0.000	12.225	22.785	-	22.785	23.026	23.299	23.310	23.501	Continuing	Continuing
Quantity of RDT&E Articles	-	-	-	-	-	-	-	-	-	-		

**A. Mission Description and Budget Item Justification**

Integrated Tactical Network/Enterprise Network is directly aligned to the Army Network Modernization Strategy LOE 1 Unified Network. These efforts support advanced component development activities that are aligned to the Army's Tactical Network Capability Set development and fielding plans.

This funding will inform design decisions for future tactical network capability sets in the areas of Aerial Tier, LEO, MEO, GEO high throughput satellite capabilities, cyber hardened communications, and resilient Line of Site (LOS) and beyond Line of Sight (BLOS) waveforms through evaluation and technical maturation. It will increase bandwidth and range; improve mobility and network security; harden the network and support interoperability with Joint and Unified Action Partners.

This project enables a converged Mission Command Network that operates seamlessly worldwide and in any environment. It includes the development of a standards-based network architecture that unifies enterprise and deployed network capabilities and features a unified transport layer, network operations and other enabling functions that allows integration of disparate networks. The Army network will provide resiliency through path diversity and dynamic routing to ensure tactical units can communicate in hostile environments. It will provide multiple ways to communicate and give commanders the ability to choose their communications methods and tools during operations. It fully incorporates cyber and electronic warfare capabilities that support the employment of the network as a weapon system. The ITN/IEN enables Unified Action Partner Interoperability through integration into the Joint Information Environment (JIE) and the Mission Partner Environment (MPE). Interoperability is the ability to routinely act together coherently, effectively and efficiently to achieve tactical, operational, and strategic objectives. Interoperability between disparate forces allows coalitions to produce greater combat power than the sum of their parts by leveraging relative strengths while mitigating relative weaknesses.

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

	<b>FY 2019</b>	<b>FY 2020</b>	<b>FY 2021</b>
<b>Title:</b> Project BT5: Integrated Tactical Network/Integrated Enterprise Network	-	11.670	22.785
<b>Description:</b> This funding is used to identify and acquire technologies to address gaps associated with LOE 1, Unified Network, for evaluation and demonstration in the overall Integrated Network. The Unified Network LOE enables a converged Mission Command Network that operates seamlessly worldwide and in any environment. This will require the creation of a standards-based network architecture that effectively integrates enterprise and deployed network capabilities across domains and environments, and features a unified transport layer that permits "plug and play" for specific network capabilities. LOE 1 addresses the following operational requirements: Converged Mission Command Network, Network Augmentation / Extension, and Synthetic Training Environment.			
<b>FY 2020 Plans:</b>			

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<b>Exhibit R-2A, RDT&amp;E Project Justification:</b> PB 2021 Army		<b>Date:</b> February 2020		
<b>Appropriation/Budget Activity</b> 2040 / 4	<b>R-1 Program Element (Number/Name)</b> PE 0604541A / <i>Unified Network Transport</i>	<b>Project (Number/Name)</b> BT5 / <i>Integrated Tactical Network/Enterprise Network</i>		
<b>B. Accomplishments/Planned Programs (\$ in Millions)</b>		<b>FY 2019</b>	<b>FY 2020</b>	<b>FY 2021</b>
<p>FY 2020 funding supports identifying solutions for network fail-over in a contested environment to enable PACE (Primary, Alternate Contingency &amp; Emergency) and demonstrate rapid restoration capability for a denied WGS NCW tactical communications network which supports BLOS communications between Division, Brigade, Battalion and Company echelons with high altitude balloon satellite surrogates. Restoring the NCW network provides resiliency to communications, including LRPF. Also, this funding supports demonstration and acquisition plans for evaluation of potential solutions for the following: Accelerate Next Generation Tactical radio, Air to ground integration, Secure LTE capabilities for mounted/ dismounted soldiers, and Tactical Network Operations (NetOps), Cyber Electromagnetic Activities (CEMA) and Tactical Identity and Access Management (IdAM). Technology enhancements will provide Integrated Multi-Transport Capabilities, High Capacity Line of Sight Backhaul Radios, Line Of Sight Communications Range Extension, Electronic Protection of Tactical Communications, Network Gateways, Tactical NetOps Tools, Distributed Computing Tools, and High Capacity Transport for Heavy Mobile Platforms. Technologies with successful results will be transitioned to a rapid acquisition initiative or an existing Program of Record strategy for integration and fielding.</p> <p><b>FY 2021 Plans:</b> Will prototype and evaluate Army science and technology solutions in order to support approved requirements documents and critical network modernization efforts to accelerate Next Generation Tactical radios, Air to ground integration, Secure LTE capabilities for mounted/ dismounted soldiers and solutions for a hardened, resilient network. Will evaluate artificial intelligence and other advanced solutions for communications network processing, transport, and operations to support resiliency in a contested and congested environment. This includes evaluating and prototyping with emerging technology solutions for communications for tactical and strategic Army assets in satellite denied, area denied environments and increase immunity to enemy detection and interception. Funding will allow the Army to identify and prototype solutions to mature the network transport and gateway components of the Mission Partner Environment (MPE) and share network operations information through warfighting assessments and evaluations that will inform Capability Set 23 and beyond. Will conduct iterative Technical Exchange Meetings with Industry and non-Army organizations such as other Services, DARPA, NSA, OSD, FFRDs, and Academia to assess, demonstrate, prototype, and integrate emerging industry solutions to mature unified network capabilities to include integration of government and commercial Low Earth Orbit (LEO), Mid Earth Orbit (MEO) and Geosynchronous Earth Orbit (GEO) high throughput satellite communications. Will reduce capability gaps and provide rapid software/hardware insertions for Programs of Record. These efforts directly support the Army's tactical network acquisition strategy roadmap submitted to Congress.</p> <p><b>FY 2020 to FY 2021 Increase/Decrease Statement:</b> Increase due to realignment of funding from BT4 and partial realignment of BT1 to better align Interoperability objectives within Integrated Tactical Network / Enterprise Network and support higher Integrated Tactical Network / Enterprise Network priorities.</p>				
<b>Title:</b> FY 2020 SBIR/STTR Transfer		-	0.555	-

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<b>Exhibit R-2A, RDT&amp;E Project Justification:</b> PB 2021 Army		<b>Date:</b> February 2020
<b>Appropriation/Budget Activity</b> 2040 / 4	<b>R-1 Program Element (Number/Name)</b> PE 0604541A / <i>Unified Network Transport</i>	<b>Project (Number/Name)</b> BT5 / <i>Integrated Tactical Network/Enterprise Network</i>

<b>B. Accomplishments/Planned Programs (\$ in Millions)</b>	<b>FY 2019</b>	<b>FY 2020</b>	<b>FY 2021</b>
<b>Description:</b> Funding transferred in accordance with Title 15 USC ?638			
<b>FY 2020 Plans:</b> Funding transferred in accordance with Title 15 USC ?638			
<b>FY 2020 to FY 2021 Increase/Decrease Statement:</b> Funding transferred in accordance with Title 15 USC ?638			
<b>Accomplishments/Planned Programs Subtotals</b>	-	12.225	22.785

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

N/A

**Remarks**

**D. Acquisition Strategy**

The Network CFT will coordinate on technologies to be evaluated with appropriate Program Management offices where there is an opportunity for technology insertion. Technologies that are determined to address technology gaps and require further evaluation will be documented in an acquisition decision memorandum after being approved by the Milestone Decision Authority. The various prototyping programs in this project will be pursued via competitively awarded contracts using best value source selection procedures.

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**Exhibit R-3, RDT&E Project Cost Analysis: PB 2021 Army** **Date:** February 2020

<b>Appropriation/Budget Activity</b> 2040 / 4	<b>R-1 Program Element (Number/Name)</b> PE 0604541A / <i>Unified Network Transport</i>	<b>Project (Number/Name)</b> BT5 / <i>Integrated Tactical Network/Enterprise Network</i>
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<b>Management Services (\$ in Millions)</b>				FY 2019		FY 2020		FY 2021 Base		FY 2021 OCO		FY 2021 Total	Cost To Complete	Total Cost	Target Value of Contract
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
Project Management Office Support	TBD	TBD : TBD	-	-		0.861	Mar 2020	-		-		-	0.000	0.861	-
FY 2020 SBIR/STTR Transfer	TBD	Various : Various	-	-		0.555		-		-		-	0.000	0.555	-
<b>Subtotal</b>			-	-		1.416		-		-		-	0.000	1.416	N/A

<b>Product Development (\$ in Millions)</b>				FY 2019		FY 2020		FY 2021 Base		FY 2021 OCO		FY 2021 Total	Cost To Complete	Total Cost	Target Value of Contract
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
TEM (Technical Exchange Meeting) Prototyping and Evaluations	TBD	TBD : TBD	-	-		7.087	Jul 2020	-		-		-	0.000	7.087	-
Commercially-driven Prototyping and Evaluation	TBD	TBD : TBD	-	-		-		9.485	Feb 2021	-		9.485	0.000	9.485	-
Government-driven Prototyping and Evaluation	TBD	CCDC C5ISR; PEO C3T : APG, MD	-	-		-		13.300	Dec 2020	-		13.300	0.000	13.300	-
<b>Subtotal</b>			-	-		7.087		22.785		-		22.785	0.000	29.872	N/A

<b>Support (\$ in Millions)</b>				FY 2019		FY 2020		FY 2021 Base		FY 2021 OCO		FY 2021 Total	Cost To Complete	Total Cost	Target Value of Contract
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
TEM Engineering Technical Support	TBD	TBD : TBD	-	-		1.861	Jun 2020	-		-		-	0.000	1.861	-
<b>Subtotal</b>			-	-		1.861		-		-		-	0.000	1.861	N/A

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<b>Exhibit R-3, RDT&amp;E Project Cost Analysis: PB 2021 Army</b>												<b>Date:</b> February 2020				
<b>Appropriation/Budget Activity</b> 2040 / 4				<b>R-1 Program Element (Number/Name)</b> PE 0604541A / <i>Unified Network Transport</i>				<b>Project (Number/Name)</b> BT5 / <i>Integrated Tactical Network/Enterprise Network</i>								
<b>Test and Evaluation (\$ in Millions)</b>				<b>FY 2019</b>		<b>FY 2020</b>		<b>FY 2021 Base</b>		<b>FY 2021 OCO</b>		<b>FY 2021 Total</b>				
<b>Cost Category Item</b>	<b>Contract Method &amp; Type</b>	<b>Performing Activity &amp; Location</b>	<b>Prior Years</b>	<b>Cost</b>	<b>Award Date</b>	<b>Cost</b>	<b>Award Date</b>	<b>Cost</b>	<b>Award Date</b>	<b>Cost</b>	<b>Award Date</b>	<b>Cost</b>	<b>Cost To Complete</b>	<b>Total Cost</b>	<b>Target Value of Contract</b>	
Test and Evaluation	TBD	TBD : TBD	-	-		1.861		-		-		-	0.000	1.861	-	
<b>Subtotal</b>			-	-		1.861		-		-		-	0.000	1.861	N/A	
<b>Project Cost Totals</b>			-	-		12.225		22.785		-		22.785	0.000	35.010	N/A	
<b>Remarks</b>																

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<b>Exhibit R-4, RDT&amp;E Schedule Profile: PB 2021 Army</b>		<b>Date:</b> February 2020
<b>Appropriation/Budget Activity</b> 2040 / 4	<b>R-1 Program Element (Number/Name)</b> PE 0604541A / <i>Unified Network Transport</i>	<b>Project (Number/Name)</b> BT5 / <i>Integrated Tactical Network/Enterprise Network</i>

Event Name	FY 2019				FY 2020				FY 2021				FY 2022				FY 2023				FY 2024				FY 2025			
	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
Tactical Resiliency for Comms, LEO/MEO/GEO					████████████████████																							
Spectrum Obfuscation					████████████████████								████████████████████															
TEM (Technical Exchange Meeting) Prototyping and Evaluations					████████████████████				████████████████████																			
Application Security with Containers (AppSec-C)					████████████████████																							
Protected Comms for MUM-T									████████████████████																			
Next Generation High Frequency (NGHF)									████████████████████																			
Non-traditional Waveforms									████████████████████																			
WGS Ka Band Surrogate													████████															
Narrowband SATCOM													████████████████████															
Protected SATCOM													████████████████████															
Information Trust																	████████████████████											
Autonomous Cyber																	████████████████████											

**UNCLASSIFIED**

<b>Exhibit R-4A, RDT&amp;E Schedule Details:</b> PB 2021 Army		<b>Date:</b> February 2020
<b>Appropriation/Budget Activity</b> 2040 / 4	<b>R-1 Program Element (Number/Name)</b> PE 0604541A / <i>Unified Network Transport</i>	<b>Project (Number/Name)</b> BT5 / <i>Integrated Tactical Network/Enterprise Network</i>

Schedule Details

Events	Start		End	
	Quarter	Year	Quarter	Year
Tactical Resiliency for Comms, LEO/MEO/GEO	2	2020	4	2021
Spectrum Obfuscation	2	2020	2	2023
TEM (Technical Exchange Meeting) Prototyping and Evaluations	2	2020	4	2025
Application Security with Containers (AppSec-C)	2	2020	1	2021
Protected Comms for MUM-T	2	2021	1	2023
Next Generation High Frequency (NGHF)	2	2021	1	2024
Non-traditional Waveforms	2	2021	1	2026
WGS Ka Band Surrogate	2	2022	3	2022
Narrowband SATCOM	2	2022	1	2024
Protected SATCOM	4	2021	3	2023
Information Trust	1	2023	4	2025
Autonomous Cyber	1	2023	4	2025

**Note**

TEM projects are continuous activities; N-CFT will reach out to industry partners in order to assess and demonstrate the latest emerging technologies which will reduce capability gaps and provide rapid software/hardware insertions into Programs of Record.